VOLUME 14 NUMBER 3

MAY-JUNE 1957

The BULLETIN

American Society of Hospital Pharmacists

EDITOR
Don E. Francke
University Hospital
University of Michigan
Ann Arbor, Michigan

ASSOCIATE EDITOR
Gloria N. Francke
1812 Norway Road
Ann Arbor, Michigan

CONTRIBUTING EDITORS
Joanne Branson
Bernard E. Conley
Leo F. Godley
William Johnson
Clifton Latiolais
Paul Parker
Sister Mary Etheldreda

ART EDITOR
Richard A. Huff

MEMBERSHIP in the American Society of Hospital Pharmacists and the American Pharmaceutical Association is open to all practicing Hospital Pharmacists. With membership is included subscriptions to THE BULLETIN of the American Society of Hospital Pharmacists and to the two *Journals* of the American Pharmaceutical Association, as well as the several services of both organizations.

ADVERTISING will be accepted, subject to editorial approval, for prescription products as well as for other items used extensively in hospitals. Inquiries should be sent to the Associate Editor of THE BULLETIN, 1812 Norway Road, Ann Arbor, Mich.

SUBSCRIPTION RATE: In the U.S. $4.50 per year (six issues), single copies 75 cents; Foreign $5 per year, single copies 85 cents. CHANGES OF ADDRESS should be directed to the Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution Ave. N.W. Washington 7, D.C.

Copyright 1957
by the American Society
of Hospital Pharmacists

The American Society of Hospital Pharmacists, an affiliate of the American Pharmaceutical Association, is a national organization devoted to the profession of hospital pharmacy and dedicated to the improvement of pharmaceutical service in the interest of better patient care in hospitals.

IN THIS ISSUE

The Law of Hospital Pharmacy 277
George F. Archambault

Recommendations of the Joint Commission on Accreditation of Hospitals—Regarding Hospital Pharmacy 301
LeRoy E. Bates

Some Aspects of the Product Duplication Problem in Hospitals 307
August H. Groeschel

Investigational Drugs—Some Principles of Handling 312
Don E. Francke

Legal Requirements for Hospital Pharmacies 317
O. K. Grettenberger

New York Convention 327

ASHP Affiliates 344
As the President Sees It 349
Book Reviews 341
Current Literature 340
Drug Evaluations 232
Editorial 275
Letters 273
New Members 358
News Items 350
Notes and Suggestions 334
Officers and Committees 230
Positions 360
Selected Abstracts 336
Therapeutic Trends 330
Timely Drugs 332

THE BULLETIN is published bimonthly at Hamilton, Illinois, by the American Society of Hospital Pharmacists in cooperation with the Division of Hospital Pharmacy of the American Pharmaceutical Association. Editorial office at 1313 East Ann Street Ann Arbor, Michigan. Entered as second class matter July 19, 1951 at the post office at Hamilton, Illinois. CONTRIBUTIONS will be accepted if they are of general interest to those in hospital pharmacy. The editors reserve the right to revise all material submitted, if necessary. The American Society of Hospital Pharmacists and the American Pharmaceutical Association assume no responsibility for the statements and opinions advanced by contributors to THE BULLETIN. Views expressed in the editorials are those of the editor and do not necessarily represent the official position of either the American Society of Hospital Pharmacists or the American Pharmaceutical Association.

OFFICERS AND COMMITTEES 1957-1958

American Society of Hospital Pharmacists

President

LEO F. GODLEY
Bronson Methodist Hospital
Kalamazoo, Mich.

Vice-President

CHARLES BARNETT
St. Luke's Hospital
Jacksonville, Fla.

Secretary

GLORIA N. FRANCKE
1812 Norway Road
Ann Arbor, Mich.

Treasurer

SISTER MARY BERENICE
St. Mary's Hospital
St. Louis, Mo.

EXECUTIVE COMMITTEE

LEO F. GODLEY
Bronson Methodist Hospital
Kalamazoo, Mich.

CHARLES BARNETT
St. Luke's Hospital
Jacksonville, Fla.

GLORIA N. FRANCKE
1812 Norway Road
Ann Arbor, Mich.

SISTER MARY BERENICE
St. Mary's Hospital
St. Louis, Mo.

WALTER M. FRAZIER
Springfield City Hospital
Springfield, Ohio

GEO. F. ARCHAMBAULT
Division of Hospitals
U. S. Public Health Service
Washington, D. C.

CLIFTON LATIOLAIS
University Hospital
Ann Arbor, Mich.

PAUL F. PARKER
2215 Constitution Ave., N.W.
Washington, D. C.

The President-Elect

Standing Committees

Committee on Program and Public Relations

Walter M. Frazier, Chairman, Springfield City Hospital, Springfield, Ohio
Herbert Flack, Jefferson Medical College Hospital, Philadelphia, Pa.
Jack Heard, Univ. of Calif. Med. Center, Los Angeles, Calif.
Louis Jeffrey, Albany Hospital, Albany, N. Y.
Russell Lovell, 476 Wirth Ave., Akron, Ohio
Evlyn Gray Scott, St. Luke's Hospital, Cleveland, Ohio
William Tester, University of Iowa Hospitals, Iowa City, Ia.
John Webb, Massachusetts General Hospital, Boston, Mass.

Committee on Pharmacists in Government Service

Charles Towne, Chairman, VA Center, Los Angeles, Calif.
William L. Austin, 36 Kennedy St., Alexandria, Va.
John J. Beretta, U. S. Naval Hospital, San Diego, Calif.
Allen J. Brands, 6012 Avon Dr., Bethesda, Md.
Jack W. McNamara, Brooke Army Hospital, Fort Sam Houston, Tex.
Paul Parker, 2215 Constitution Ave. N.W., Washington, D. C.
Milton Skolaut, Clinical Center, Na't. Institutes of Health, Bethesda, Md.
Arthur Sumliner, 7113 Quartz Ave., Canoga Park, Calif.

Committee on Membership and Organization

George F. Archambault, Chairman, Chief, Pharmacy Branch, Division of Hospitals, U. S. Public Health Service, Washington 25, D. C.
Allen V. R. Beck, Indiana University Medical Center, Indianapolis, Ind.
Robert Bogash, Lenox Hill Hospital, New York, N. Y.
Carl Dell, Jackson Memorial Hospital, Miami, Fla.
James McKinley, M.D. Anderson Hospital, Houston, Tex.
Nelly Nigro, 553½ Landfair Ave., Los Angeles 24, Calif.
Jane Rogan, Evangelical Deaconess Hospital, Detroit, Mich.
Sister Mary Angeline, St. Mary's Hospital, Brooklyn, N. Y.
Vernon Trygstad, VA Central Office, Washington, D. C.

Committee on Minimum Standards

Clifton Latiolais, Chairman, University Hospital, Ann Arbor, Mich.
William Heller, University of Arkansas Hospital, Little Rock, Ark.
Richard Henry, Madison General Hospital, Madison, Wis.
Isabel Stauffer, 59 Legget Ave., Weston, Ontario, Canada

Special Committees

Committee on Disaster Preparedness

Ludwig Pesa, Chairman, St. Mary's Hospital, Passaic, N. J.
Robert Cathcart, Delaware Hospital, Wilmington, Del.
Thomas Foster, Division of Civilian Health Requirements, U. S. Public Health Service, Washington, D. C.
Neal Johnston, 1340 Wetsell Ave., Lancaster, Ohio
Milton Skolaut, Clinical Center, Nat'l. Institutes of Health, Bethesda, Md.
Vernon Trygstad, VA Central Office, Washington, D. C.

Committee on Economic and Household Poisons

Clara Marie Henry, Chairman, 1629 Fifth Ave., Oakland, Calif.
Emily A. Alekna, 695 Colman, Altadena, Calif.
Edward F. Croumey, Mary Fletcher Hospital, Burlington, Vt.
Robert J. Kubiak, Winnebago, Wis.
Albert L. Picchioni, University of Arizona, College of Pharmacy, Tucson, Ariz.
Elmer M. Plein, College of Pharmacy, University of Washington, Seattle, Wash.
Lillian Price, Emory University Hospital, Atlanta, Ga.
Robert Simons, Wilmington Hospital, Wilmington, Del.
Sister M. Teresa, St. Anthony Hospital, Oklahoma City, Okla.

Committee on Historical Records

Alex Berman, Chairman, College of Pharmacy, University of Michigan, Ann Arbor, Mich.
Albert Lauve, Mercy Hospital, New Orleans, La.
Thomas Reamer, Duke Hospital, Durham, N. C.
Sister Mary John, Mercy Hospital, Toledo, Ohio
Robert Stockhaus, University Hospitals, Cleveland, Ohio

Committee on International Hospital Pharmacy

Don E. Francke, Chairman, University Hospital, Ann Arbor, Mich.
Claude Busick, St. Joseph's Hospital, Stockton, Calif.
E. Burns Geiger, Pfizer Laboratories, 630 Flushing Ave., Brooklyn, N.Y.
Thomas Reamer, Duke University Hospital, Durham, N. C.
Anna C. Richards, Mountainside Hospital, Montclair, N. J.
Adela Schneider, Southern Pacific Hospital, Houston, Tex.
Geraldine Stockert, Monmouth Memorial Hospital, Long Branch, N. J.

Committee To Study Safety Measures in Handling Drugs in Hospitals

Robert Lantos, Chairman, University Hospital, University of Texas-Medical Branch, Galveston, Tex.
Jennie M. Banning, Saginaw General Hospital, Saginaw, Mich.
Ugo Caruso, Grace-New Haven Hospital, New Haven, Conn.
Edward A. Hartshorn, Evanston Hospital, Evanston, Ill.
Doris B. Hawkins, 1935 E. Hedrick Drive, Tucson, Ariz.

Committee on Isotopes

Peter Solyom, Chairman, University of Chicago Clinics, Chicago 37, Ill.
Herbert L. Flack, Jefferson Medical College Hospital, Philadelphia, Pa.
Clifton Latiolais, University Hospital, Ann Arbor, Mich.
Paul F. Parker, 2215 Constitution Ave., N.W., Washington 7, D. C.
Evlyn Gray Scott, St. Luke's Hospital, Cleveland, Ohio

Committee on Laws, Regulations and Legislation

James Mitchener, Chairman, Cabarrus Memorial Hospital, Concord, N. C.
Harold Black, University of Iowa Hospitals, Iowa City, Iowa
Claude Busick, St. Joseph's Hospital, Stockton, Calif.
Claude Paoloni, Moses H. Cone Memorial Hospital, Greensboro, N. C.
Ruth Pully Summers, Charlotte Hungerford Hospital, Torrington, Conn.

Committee on Professional Liability Insurance

Ethel Pierce, Chairman, 19 Pearl St., North Abington, Mass.
Charles Barnett, St. Luke's Hospital, Jacksonville, Fla.
Claude Busick, St. Joseph's Hospital, Stockton, Calif.
Charles Schraub, New England Deaconess Hospital, Boston, Mass.
Edward J. Singer, 13 Reservoir Ave., Norwalk, Conn.
William Woods, 156 Cordula, Corpus Christi, Tex.

Committee on Special Projects

Benjamin Teplitsky, Chairman, VA Hospital, Albany, N. Y.
Herbert Flack, Jefferson Medical College Hospital, Philadelphia, Pa.
Louis P. Jeffrey, Albany Hospital, Albany, N. Y.
Clifton F. Lord, University of Buffalo, School of Pharmacy, Buffalo, N.Y.
Sister M. Gonzales, Mercy Hospital, Pittsburgh, Pa.

Committee on Publications

Daniel F. Moravec, Chairman, Lincoln General Hospital, Lincoln, Neb.
William Johnson, Bronson Methodist Hospital, Kalamazoo, Mich.
George Phillips, University Hospital, Ann Arbor, Mich.
Louise Pope, University of Arkansas Hospital, Little Rock, Ark.
Sister M. Etheldreda, St. Mary's Hospital, Brooklyn, N. Y.

Committee on Pharmacy and Pharmaceuticals (American Hospital Formulary Service)

William Heller, Chairman, Univ. of Arkansas Hosp., Little Rock, Ark.
Grover C. Bowles, Baptist Memorial Hospital, Memphis, Tenn.
Don E. Francke, University Hospital, Ann Arbor, Mich.
W. Arthur Purdum, The Johns Hopkins Hospital, Baltimore, Md.
Evlyn Gray Scott, St. Luke's Hospital, Cleveland, Ohio

Committee on Research and Development

Milton W. Skolaut, Chairman, Nat'l. Institutes of Health, Bethesda, Md.
William Heller, Univ. of Arkansas Hosp., Little Rock, Ark.
Charles Towne, Veterans Administration Center, Los Angles, Calif.

Joint Committee of the American Hospital Association and the American Society of Hospital Pharmacists

ASHP Representatives

George F. Archambault, U. S. Public Health Service, Washington, D. C.
Don E. Francke, University Hospital, Ann Arbor, Mich.
Walter Frazier, Springfield City Hospital, Springfield, Ohio
Evlyn Gray Scott, St. Luke's Hospital, Cleveland, Ohio
Gloria N. Francke, 1812 Norway Road, Ann Arbor, Mich. ex-officio
Leo F. Godley, Bronson Methodist Hospital, Kalamazoo, Mich. ex-officio

AHA Representatives

August Groeschel, The New York Hospital, New York, N. Y.
C. Joseph Vance, South Highlands Infirmary, Birmingham, Ala.
John J. Zugich, University Hospital, Ann Arbor, Mich.
Robert Cadmus, N. C. Memorial Hospital, Chapel Hill, N. C.
Sarah Hardwicke, American Hospital Association, Chicago, Ill. ex-officio
Joseph Oddis, American Hospital Association, Chicago, Ill. ex-officio

DIVISION OF HOSPITAL PHARMACY

. . . . . .

PAUL F. PARKER, *Director*
Division of Hospital Pharmacy
Am. Pharm. Assoc.
2215 Constitution Ave., N.W.
Washington 7, D. C.

Policy Committee

Representing the American Pharmaceutical Association:

ROBERT P. FISCHELIS
Am. Pharm. Assoc.
Washington, D. C.

GLENN L. JENKINS
Purdue University
Lafayette, Ind.

Representing the American Hospital Association:

ROBERT R. CADMUS
N. C. Memorial Hospital
Chapel Hill, N. C.

Representing the Catholic Hospital Association:

SISTER M. STEPHANINA
Motherhouse of the Community of
St. Francis Hospital
Mishawaka, Ind.

Representing the American Society of Hosp. Pharmacists:

GEO. F. ARCHAMBAULT
Division of Hospitals
U. S. Public Health Service
Washington, D. C.

GROVER C. BOWLES
Baptist Memorial Hospital
Memphis, Tenn.

LEO F. GODLEY
Bronson Methodist Hospital
Kalamazoo, Mich.

DON E. FRANCKE
University Hospital
Ann Arbor, Mich.

RESERPINE
and
RAUWOLFIA SERPENTINA

POWDER • TABLETS • AMPULES

Now at Lowest Prices in the Field

Serpanray®

(reserpine, pure crystalline alkaloid, 'PANRAY')

#325	AMPULES, 2 cc *(for parenteral use, contains 2.5 mg. reserpine per cc)*	
	5 ampules	$ 0.60 ea.
	25 ampules	$ 0.50 ea.
	50 ampules	$ 0.45 ea.
	100 ampules	$ 0.40 ea.
	200 ampules	$ 0.35 ea.
	500 ampules	$ 0.30 ea.
#326	AMPULES, 2 cc *(for parenteral use, contains 5.0 mg. reserpine per cc)*	
	5 ampules	$ 0.70 ea.
	25 ampules	$ 0.60 ea.
	50 ampules	$ 0.55 ea.
	100 ampules	$ 0.50 ea.
	200 ampules	$ 0.45 ea.
	500 ampules	$ 0.40 ea.
#350	POWDER	
	Bottles of 1 Gm.	$ 5.15 ea.
	Lots of 5 Gms.	$ 4.95/Gm.
	Lots of 10 Gms.	$ 4.85/Gm.
	Lots of 25 Gms.	$ 4.75/Gm.
	Lots of 50 Gms.	$ 4.65/Gm.
#351 C.T. *scored*	TABLETS, 0.1 mg. Lots of 100M	$ 1.20/M—bulk*
#352 C.T. *scored*	TABLETS, 0.25 mg. Lots of 100M	$ 1.60/M—bulk*
#353 C.T. *scored*	TABLETS, 0.5 mg. Lots of 100M	$ 2.65/M—bulk*
#354 C.T. *scored*	TABLETS, 1.0 mg. Lots of 100M	$ 4.75/M—bulk*
#355 C.T. *scored*	TABLETS, 2.0 mg. Lots of 100M	$ 9.50/M—bulk*
#355A C.T. *scored*	TABLETS, 3.0 mg. Lots of 100M	$14.25/M—bulk*
#356 C.T. *scored*	TABLETS, 4.0 mg. Lots of 100M	$19.00/M—bulk*
#357 C.T. *scored*	TABLETS, 5.0 mg. Lots of 100M	$23.70/M—bulk*

'KOGLUCOID'

(rauwolfia serpentina, 'PANRAY')

#301 S.C.T. *Yellow (or Red on request)*	TABLETS, 50 mg. Lots of 100M	$ 1.40/M—bulk*
#302 S.C.T. *Red*	TABLETS, 100 mg. Lots of 100M	$ 2.50/M—bulk*
#303 S.C.T. *Red*	TABLETS, 250 mg. Lots of 100M	$ 4.50/M—bulk*

* For smaller quantities and bottling charges, add following increments to 100,000 quantity price shown in list:

Quantities of	Bulk-fibre drums ADD	Bottles of 1,000 ADD
100,000	as quoted	$0.15/M
50,000	$0.10/M	0.25/M
25,000	0.20/M	0.35/M
10,000	0.30/M	0.45/M
5,000	0.40/M	0.55/M
1,000	—	0.65/M

Intermediate quantities are priced at closest category applicable.

Terms: 1% 10 days, net 30. F.O.B. Destination.

THE PANRAY CORP., 340 Canal St., New York, N. Y.

Please enter our order as follows for immediate delivery:

PRODUCT	QUANTITY	PACKING

Hospital_____

Address_____

City_____ Zone____ State_____

Ordered By:

DRUG EVALUATIONS

by the Council on Drugs of the American Medical Association

The following monographs and supplemental statements on drugs have been authorized by the Council on Drugs of the American Medical Association for publication and inclusion in *New and Nonofficial Drugs*. They are based upon the evaluation of available scientific data and reports of investigations. In order to make the material even more valuable, dosage forms and preparations of individual drugs have been added to the monographs. These dosage forms and preparations were not taken from material published in the *Journal of the American Medical Association* by the Council on Drugs; rather, they were obtained from such manufacturers' brochures, news releases, etc., which were available to us at the time of publication. An attempt has been made to make the list of dosage forms as complete as possible. However, no guarantee can be made that the list of preparations is complete and it is suggested that hospital pharmacists consult manufacturers' releases for additional dosage forms and preparations.

The issues of the *Journal of the American Medical Association* from which each monograph has been taken is noted under each monograph. Monographs in this issue of THE BULLETIN include those published in the *Journal* to April 1, 1957.

NOTICE

New and Nonofficial Remedies 1957 is now available from your local bookstore and from the publishers, J. B. Lippincott Company, Philadelphia, Pa. This 1957 edition contains monographs of drugs evaluated by the Council on Drugs of the American Medical Association and published in the Journal of the A.M.A. to October 1956. The index listed below contains those drugs evaluated and published between October 1, 1956 and April 1, 1957.

INDEX TO EVALUATED DRUGS, THIS ISSUE

238 ALBAMYCIN SODIUM
240 BETADINE
240 BRISTAMIN CITRATE
238 CATHOMYCIN SODIUM
252 CORONARY ARTERY DISEASE, current status of
233 CYCLOSERINE
236 DELALUTIN CAPROATE
236 HYDROXYPROGESTERONE CAPROATE
240 ISODINE
238 NOVOBIOCIN SODIUM
240 PHENMETRAZINE HYDROCHLORIDE
240 PHENYLTOLOXAMINE CITRATE
242 PNEUMONIAS, current status of therapy in
240 POVIDONE-IODINE
240 PRELUDIN HYDROCHLORIDE
242 PYRONIL PHOSPHATE
242 PYRROBUTAMINE PHOSPHATE
233 SEROMYCIN

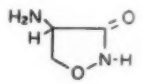
INDEX TO EVALUATED DRUGS PUBLISHED IN THE JANUARY-FEBRUARY AND MARCH-APRIL ISSUES OF THE BULLETIN

6 BENOQUIN (Jan.-Feb.)
3 BETHANECHOL CHLORIDE, for paralytic ileus and urinary retention after ganglionic blockade (Jan.-Feb.)
12 CHLOROPHENOTHANE, report on toxicity in man (Jan.-Feb.)
123 CHLOROPROCAINE HYDROCHLORIDE (Mar.-Apr.)
130 CRYSTALLINE TRYPSIN, intramuscular use (Mar.-Apr.)
12 DDT, report on toxicity in man (Jan.-Feb.)
4 DECAMETHONIUM BROMIDE (Jan.-Feb.)
4 DORIDEN (Jan.-Feb.)
124 ERYTHROMYCIN, intramuscular use (Mar.-Apr.)
4 GLUTETHIMIDE (Jan.-Feb.)
130 HYPERTENSION, current status of therapy (Mar.-Apr.)
126 INVERSINE HYDROCHLORIDE (Mar.-Apr.)
8 KEMADRIN HYDROCHLORIDE (Jan.-Feb.)
126 MECAMYLAMINE HYDROCHLORIDE (Jan.-Feb.)
6 MONOBENZONE (Jan.-Feb.)
123 NAME OF COUNCIL, Title of Its Publication, Changed (Mar.-Apr.)
123 NESACAINE HYDROCHLORIDE (Mar.-Apr.)
8 PERIN (Jan.-Feb.)
128 PHYTONADIONE, oral use (Mar.-Apr.)
8 PIPERAZINE CALCIUM EDATHAMIL (Jan.-Feb.)
128 PREDNISOLONE, topical use (Mar.-Apr.)
8 PROCYCLIDINE HYDROCHLORIDE (Jan.-Feb.)
4 SYNCURINE BROMIDE (Jan.-Feb.)
140 SYPHILIS, current status of therapy (Mar.-Apr.)
10 TOXICOLOGY, report of annual meeting of Committee on (Jan.-Feb.)
3 TRADE NAMES, listing extended (Jan.-Feb.)

Cycloserine

Seromycin®

CYCLOSERINE is D-4-amino-3-isoxazolidinone.—The structural formula of cycloserine may be represented as follows:



Actions and Uses

Cycloserine, an antibiotic substance elaborated by strains of Streptomyces orchidaceus or S. garyphalus, possesses a wide spectrum of antibacterial activity in vitro, inhibiting the growth of both gram-positive and gram-negative organisms. This antimicrobial activity is, however, less than that of most other antibiotics in general use. The drug inhibits the growth of Mycobacterium tuberculosis in vitro in concentrations of 5 to 10 mcg. per cubic centimeter, but its in vivo effect in experimental tuberculosis in animals other than monkeys is negligible due to rapid excretion or metabolic destruction. In human infections, cycloserine exerts a definite antituberculosis effect; however, this is not so pronounced as that produced by streptomycin, isoniazid, and probably aminosalicylic acid. Since the drug is readily absorbed from the gastrointestinal tract, therapeutically effective blood levels may be attained within 4 to 8 hours after administration, depending on dosage. The drug also reaches the cerebrospinal fluid

in significant concentrations. The metabolic fate of cycloserine is imperfectly known, but its in vivo degradation is indicated by the failure of the drug to appear in the urine in concentrations of more than 20% of the administered dose.

Cycloserine is indicated in the treatment of severe pulmonary tuberculosis in patients who fail to respond to other tuberculostatic agents or whose organisms are resistant to these drugs. In carefully selected patients in this category, the drug may produce prompt symptomatic improvement as evidenced by subsidence of fever, improvement of appetite, diminution of cough and expectoration, and, in some cases, weight gain. The drug is considered to be less effective than streptomycin and isoniazid in producing long-term improvement. Thus sputum conversions and favorable x-ray changes have been reported, but the incidence of these is variable. Because of this relatively weak tuberculostatic effect and also because of its potential toxicity, cycloserine should not be used for the initial chemotherapy of tuberculosis. Chemotherapy for untreated patients should be initiated with other agents adjudged to be more effective and less toxic, including streptomycin, isoniazid, and aminosalicylic acid, or combinations of these drugs. If and when resistance to the foregoing agents develops, substantial benefit may follow the judicious use of cycloserine. The ability of cycloserine to penetrate the cerebrospinal fluid suggests its possible value in tubercular meningitis, but its efficacy in the few cases reported to date has not been impressive.

On the basis of past experience, indicating that combined chemotherapy for the treatment of tuberculosis is generally more satisfactory than therapy with a single agent, cycloserine has been administered in combination with isoniazid. Preliminary reports indicate that such a combination may be more effective in controlling tuberculosis than is cycloserine given alone. Such combined therapy offers the possible additional advantage of allowing cycloserine to be administered in smaller total dosages, thereby decreasing the incidence and severity of its toxic effects. Sufficient experience is not available at the present time, however, to adjudge the efficacy of such a regimen; likewise, little or no evidence is available on the usefulness of cycloserine combined with tuberculostatic agents other than isoniazid.

Contrary to original expectations, bacterial resistance to cycloserine does develop, but the speed with which this occurs is not yet certain. Some reports indicate a very slow emergence of resistant strains; others indicate that resistance develops rapidly and is associated with a failure of the drug to improve the pathological process. Whether the emergence of resistance to cycloserine can be delayed by combining the drug with other antituberculosis drugs can be determined only in the light of subsequent experience.

Selected cases of stubborn upper and lower urinary tract infections produced by a variety of bacteria have been successfully treated with cycloserine. Organisms against which it is useful include streptococci, micrococci (staphylococci), Escherichia coli, and Aerobacter aerogenes. It is not effective against Pseudomonas and Proteus vulgaris and is of no value in the treatment of gonorrhea. Since cycloserine has a relatively weak antibacterial effect and appreciable toxicity, its use for therapy in urinary tract infections should be reserved for those patients in whom other antimicrobial therapy is contraindicated because of bacterial resistance or drug sensitivity.

In terms of frequency and severity, but not necessarily long-term damaging effects, the toxic effects of cycloserine exceed those of all other agents commonly used in the chemotherapy of tuberculosis. Depending on dosage, toxic effects referable to the central nervous system occur in a large percentage of patients to whom it is administered. Such effects include headache, vertigo, lethargy, behavioral changes, psychotic episodes, and convulsions. The convulsive seizures vary in type from petit mal to grand mal and have been observed in a sizable percentage of patients receiving 1 gm. or more of the drug per day. When dosage is reduced to 0.5 gm. per day or less, the incidence of convulsions is greatly reduced. The effects on the central nervous system generally appear within the first week or two of treatment and are reversible upon discontinuance of therapy; however, the drug is contraindicated in patients with a history of epilepsy and mental disturbances and should be administered with caution and in reduced dosage to patients with renal insufficiency.

Dosage

Cycloserine is administered orally. Because of its potential toxic effects, the drug should be administered initially only to patients who are hospitalized and who can be closely observed for serious reactions, such as convulsions and psychotic disturbances. Experience has shown that toxic effects may be minimized if blood levels of the drug do not exceed 25 to 30 mcg. per cubic centimeter. It is, therefore, imperative that determinations of blood concentration be made as a guide to dosage. These should be performed frequently during initiation of therapy and then repeated periodically during the subsequent two months of therapy.

For treatment of tuberculosis, blood levels should, if possible, be maintained around 25 to 30 mcg. per cubic centimeter. Initial dosage should be low and then increased gradually if no signs of toxic reaction supervene. As a general guide, 0.25 gm. per day may be administered for the initiation of therapy. If no convulsions or other serious side-effects occur after two weeks, dosage is increased to 0.25 gm. twice daily. This may be continued for an additional 10 days, at which time the dosage is increased to 0.25 gm. three times daily. Although maximum daily dosages of 1 gm. have been administered, it is not yet known whether the therapeutic effect of such a regimen exceeds that of 0.5 gm. per day. In view of the increased toxic effects of the higher dosages, the total amount administered should probably not exceed 0.5 gm. per day. Even in the absence of toxic effects, dosage should be reduced if blood levels exceed 30 mcg. per cubic centimeter. In experimental studies with combination therapy, dosages of not more than 0.25 gm. of cycloserine and 0.15 gm. of isoniazid have been employed every 12 hours. For the treatment of urinary tract infections, the dosage of cycloserine should not exceed 0.25 gm. every 12 hours.

Applicable commercial name: Seromycin.

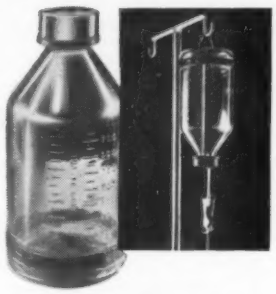
Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of cycloserine.

J. Am. Med. Assoc. **163**:645 **(Feb. 23) 1957.**

Preparations

Capsules Cycloserine (Seromycin) 250 mg.
Capsules Cycloserine (Seromycin) 250 mg. with Isoniazid (INH) 150 mg.

1.



SEAL-O-VAC

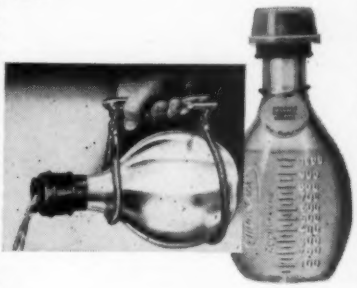
The new and improved MacBick solutions system combines the ultimate in safety, economy, versatility and convenience for hospital preparation and administration of intravenous solutions. *Self-sealing* under perfect vacuum. Vacuum click signal permits sterility-maintenance check before use. Choice of single or double hole bushings.

2.

PHARM-O-PAC

For the flasking and sterilizing small-volume injectibles. Maximum safety, economy, protects sterility, completely tamper-proof. Average hospital can cut costs 50% by using Pharm-O-Pac system and manufacturing distilled water, 50% dextrose, potassium chloride, procaine solutions, etc.

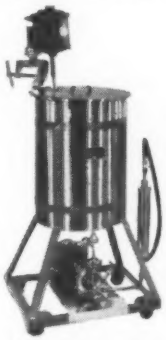
3.



POUR-O-VAC

Famous, widely-used Pour-O-Vac pyrex flasks with self-sealing closures. A complete line of accessories including identification tags, holders, etc. which together provide a complete and safe system for the preparation and storage of sterile surgical fluids.

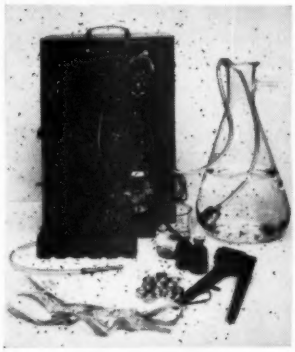
4.



BATCH TANKS

MacBick offers a wide variety of stainless steel parenteral units to provide complete batch processing facilities for the pharmacist. Available in sizes having mixing capacities of 10, 25, 50 and 100 gallons. Completely portable. Proven time and labor saver.

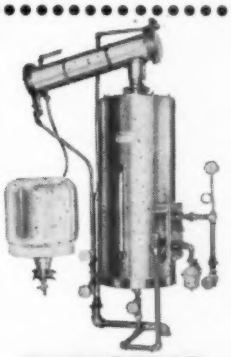
5.



FILAMATIC

Electronically controlled, aseptic vial filler and automatic pipetter. For small containers of up to 4½ oz. capacity; accuracy to fraction of 1%. Easy to clean, easy to use. Low in cost.

6.



BARNSTEAD WATER STILLS

High quality, dependable Barnstead Q-baffle water stills provide the large volume of pyrogen-free distilled water for modern pharmacy techniques. New de-ionizer filter condensate feedback attachment completely eliminates need for cleaning . . . time and expense saver.

MACBICK

SPECIALIST for the PHARMACIST

FREE

DETAILED LITERATURE: send today for complete illustrated literature on equipment for the hospital pharmacist. Local MacBick representatives will be pleased to discuss the latest techniques being used by leading hospitals and how they are saving time and money through these modern techniques.

MacBick

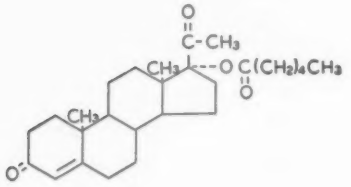
THE MACBICK COMPANY

Formerly Macalaster Bicknell Parenteral Corporation
243 Broadway, Dept. M., Cambridge 39, Massachusetts

Hydroxyprogesterone Caproate

Delalutin® Caproate

HYDROXYPROGESTERONE CAPROATE is 17 *a*-hydroxyprogesterone hexanoate.—The structural formula of hydroxyprogesterone caproate may be represented as follows:



Actions and Uses

Hydroxyprogesterone caproate is an esterified progesterone derivative with pronounced progestogen activity. After parenteral injection in man or laboratory animals, the drug elicits all the pharmacological responses usually produced by progesterone. Thus, it increases basal body temperature (thermogenic effect), produces secretory changes in an estrogen-primed endometrium, induces nonspecific histological changes in the vaginal epithelium, and causes withdrawal bleeding from the endometrium after endogenous or exogenous estrogen. It differs from progesterone chiefly in potency and duration of action; the esterified derivative appears to be more potent than an equivalent amount of progesterone, and the duration of its action is unquestionably longer. The latent period between injection of hydroxyprogesterone caproate and the induction of withdrawal bleeding from an estrogen-primed endometrium is usually 10 to 14 days; this is two to three times longer than that period observed after the injection of progesterone. The metabolic fate of the esterified derivative is not well understood; it apparently is not metabolized in the same manner as progesterone, since its administration does not lead to an increased urinary excretion of pregnanediol. Like progesterone, hydroxyprogesterone caproate exerts no androgenic effects.

In general, the indications for the use of hydroxyprogesterone caproate are identical to those for progesterone. The longer duration of action, however, makes it preferable to the parent drug in those conditions in which prolonged progestogen activity is desired. In certain patients with amenorrhea, either primary or secondary, the use of the drug is clearly indicated and established. Care must be exercised, however, in the selection of patients; progestogen therapy should not be undertaken indiscriminately without first attempting to ascertain the reason for cessation of menses. The drug is also effective in producing a secretory endometrium and subsequent menstruation in women undergoing estrogen therapy. The use of progestogens for the treatment of functional uterine bleeding (metropathia hemorrhagica) has been greatly abused in the past. Not only should genital malignancy be excluded in such patients, but diagnostic studies (curettage) should be included before instituting hormonal therapy. In such cases, the use of progestational agents is indicated for diagnosed endometrial hyperplasia. Likewise, the drug should not be used indiscriminately for the treatment of female infertility; however, it may be tried when inadequate corpus luteum function is suspected.

For many years progesterone and its derivatives have been administered for the treatment of threatened and habitual abortion. Recent evidence suggests that a beneficial effect may be obtained if an adequate amount of progestational therapy is maintained throughout pregnancy. For this purpose, hydroxyprogesterone caproate would appear to offer the advantage of a longer duration of action. The drug also has been administered for the treatment of after-pains, dysmenorrhea, premenstrual tension, and such benign breast disorders as cyclomastopathy, mastodynia, adenosis, and chronic cystic mastitis. However, all these indications for progestational therapy are considered by the Council to be unestablished at this time. Hydroxyprogesterone caproate is an effective progestational agent for the use in tests for endogenous estrogen production; however, since a short progestogen effect is desirable, the esterified derivative is not as advantageous as progesterone for this purpose.

The local and systemic toxic effects of hydroxyprogesterone caproate are minimal, and, in therapeutic doses, there are no definite contraindications to its use. Large doses may rarely produce a slight edema or exacerbate attacks of asthma, epilepsy, and migraine in patients with these conditions. As with all progestational agents, the administration of hydroxyprogesterone caproate during the first half of the ovarian cycle to sexually mature women with regular, normal menses may inhibit the production and/or release of gonadotropic hormones, particularly the leuteinizing hormone. By delaying ovulation, such administration may postpone temporarily the onset of menstruation.

Dosage

Hydroxyprogesterone caproate is administered as an oil solution by intramuscular injection. The usual single dose for the treatment of ovarian and uterine dysfunction and menstrual disorders ranges from 0.125 to 0.25 gm. For these conditions, the drug should be administered to patients who either produce adequate amounts of endogenous estrogen or who have been primed with exogenous estrogen. The drug also may be administered concomitantly with estrogenic substances. The interval between injections varies with the condition being treated and the individual response of the patient; for most ovarian and menstrual disorders, this interval is usually about 4 weeks, or once during each menstrual cycle. As a rule, the initial injection should be administered about 12 days before the expected or desired menstrual flow. The dosage for the treatment of threatened or habitual abortion is not yet established, although amounts up to 1 gm. per week have been employed.

Applicable commercial name: Delalutin.

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of hydroxyprogesterone caproate.

J. Am. Med. Assoc. 163:356 (Feb. 2) 1957.

Preparations

Injection Hydroxyprogesterone (Delalutin) Caproate 125 mg. per ml.; 2 ml. and 10 ml. vials.

announcing...
the full-range tranquilizer

Trilafon*

(pronounced Trĭl'-a-fon) perphenazine

WITH MARKEDLY ENHANCED POTENCY

—in hospitalized psychotics
—in agitated ambulatory psychoneurotics
—in anxiety and tension states

- potency up 5-fold over chlorpromazine
- uniquely high therapeutic index
- jaundice notably infrequent in studies to date
- virtual freedom from significant hypotension
- no agranulocytosis reported
- skin photosensitivity not observed
- skin rashes and nasal congestion uncommon

unexcelled as a potent antiemetic

For complete information on dosage, indications, side effects, precautions and contraindications consult Schering literature.

SPECIAL HOSPITAL PACKAGE	NET HOSPITAL PRICE
2 mg., canister of 5000	$170.00
4 mg., canister of 5000	243.00
8 mg., canister of 5000	265.00
16 mg., canister of 5000	360.00

*T.M.

TR-J-757

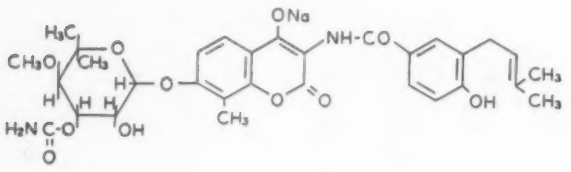
SCHERING CORPORATION
BLOOMFIELD, NEW JERSEY

Schering

Novobiocin Sodium

Albamycin® Sodium
Cathomycin® Sodium

NOVOBIOCIN SODIUM is the sodium salt of an antibiotic substance produced by fermentation from cultures of Streptomyces niveus and S. spheroides. The structural formula of novobiocin sodium may be represented as follows:



Actions and Uses

Novobiocin sodium, an antibiotic with a moderate antimicrobial spectrum whose scope of clinical application has not yet been completely determined, inhibits the growth of many gram-positive organisms in vitro, being particularly active against Micrococcus (Staphylococcus) pyogenes var. aureus. Except for some strains of Proteus vulgaris and coliform bacteria, it has little or no activity against most gram-negative bacilli of the enteric group. Gram-negative cocci are only moderately sensitive to the drug, and its effect on enterococci is variable.

After oral administration to man or experimental animals, novobiocin is rapidly absorbed from the gastrointestinal tract, producing peak concentrations in the blood within 2 to 3 hours. High levels are found at 8 hours, and detectable amounts may be found in the serum for as long as 24 hours. The antibiotic diffuses in appreciable concentration into pleural and ascitic fluid but not into the cerebrospinal fluid in the presence of noninflamed meninges. Novobiocin is concentrated in the feces and urine.

Novobiocin sodium is indicated for the treatment of micrococcic (staphylococcic) infections. Because of its side-effects and the ease with which resistant strains may develop, it is best reserved for the more serious type of infection in which the patient is allergic to other drugs or in which the micrococci are resistant to the commonly employed antimicrobial agents. Such agents include penicillin, the tetracyclines, erythromycin, streptomycin, chloramphenicol, neomycin, bacitracin, and the sulfonamides. The drug has been successful in arresting serious infections, some of which might have caused death because of uninhibited growth of organisms resistant to all other available antibiotics. To date, it has produced good results in the treatment of cellulitis, various abscesses and ulcers, postoperative wound infections, and micrococcic enteritis and septicemia. Novobiocin sodium also has been used for the treatment of Proteus infections, particularly those of the urinary tract that are resistant to other agents. Although preliminary results are gratifying further study is necessary to establish its ultimate usefulness for this purpose.

In vitro and clinical evidence indicates that micrococcic resistance to novobiocin develops in a manner similar to that to other antibiotics. To date, no cross resistance to other antibiotics has been observed. In view of its demonstrated effectiveness against sensitive strains of micrococci resistant to other antibiotics, the clinical use of novobiocin should be sharply circumscribed. In general, it should not be used for minor infections, should be withheld until resistance or allergy precludes the use of other antibiotics, and should not be administered until accurate bacteriological identification of micrococci has been made. When indicated, therapy should be sufficiently intense to overwhelm the offending bacteria before resistant strains can develop. Only by preventing the indiscriminate use of novobiocin can its valuable antimicrococcic properties be preserved.

Novobiocin sodium is an antibiotic with a relatively high index of sensitization. Thus, skin rashes, urticaria, and fever have been observed in a significant percentage of patients to whom it was administered. Transient leukopenia, possibly due to the drug, has been reported in about 2% of patients undergoing novobiocin therapy. This has not as yet been observed to progress into true agranulocytosis, but physicians should be alert for this possibility and should make frequent examination of the peripheral blood during therapy. In some patients the drug also produces a yellow pigment that interferes with the determination of serum bilirubin and may cause false positive reactions. This is, however, a metabolite of the drug rather than a bile pigment. Novobiocin may, therefore, be administered cautiously to patients with liver damage.

Dosage

Novobiocin sodium is administered orally. Since the ability of blood serum to bind the drug may vary from individual to individual, dosage cannot be easily standardized. Hence, physicians should administer the drug in sufficiently large dosages to produce a clinical effect. As a general guide, the usual dose for adults is 0.25 gm. every 6 hours or 0.5 gm. every 12 hours. In unusually severe or resistant infections, administration of 2 gm. or more per day in divided doses may be necessary. For children, total daily dosages ranging from 15 to 45 mg. per kilogram of body weight may be administered, the higher amounts being indicated for the more severe infections. Medication should be continued for at least 48 hours after temperature has returned to normal and all evidence of infection has subsided.

Applicable commercial names: Albamycin Sodium; Cathomycin Sodium.

Merck Sharp & Dohme Research Laboratories, Division of Merck & Co., Inc., and The Upjohn Company cooperated by furnishing scientific data to aid in the evaluation of novobiocin sodium.

J. Am. Med. Assoc. 163:646 (Feb. 23) 1957.

Preparations

Capsules Novobiocin (Albamycin; Cathomycin) Sodium 250 mg.

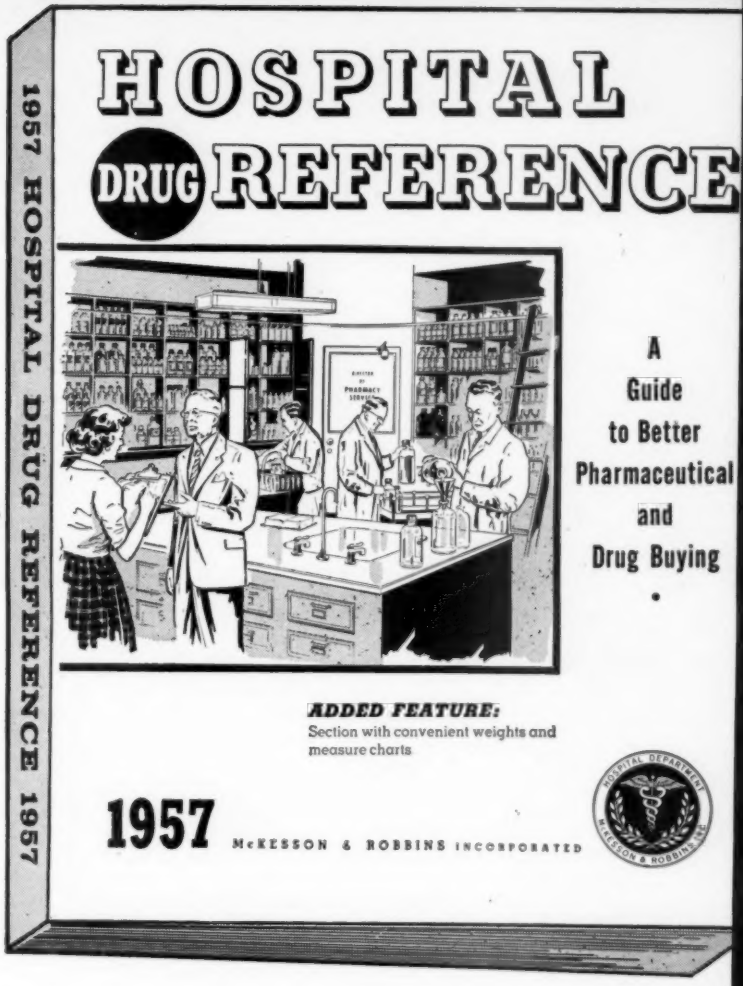
Capsules Novobiocin Sodium 250 mg. and Penicillin G Potassium 250,000 Units (Alba-Penicillin).

Capsules Novobiocin Sodium 125 mg. and Penicillin G Potassium 125,000 Units (Cathocillin)

Syrup Novobiocin (Albamycin) Sodium 125 mg. per 5 ml.; 60 ml. and pint bottles.

NOW READY

YOUR NEW 1957 COPY!



YOUR "ENCYCLOPEDIA" OF PHARMACEUTICAL FACTS—AN EXCLUSIVE McKESSON SERVIC

The McKesson Hospital Reference Book is the most convenient, most complete buying guide for every drug and pharmaceutical need in your hospital. It is the only one of its kind. It is kept up-to-date.

Over 200 hospitals served as a panel in compiling McKesson's list of *all* manufacturers' products. To save your time, it is in three sections, each arranged alphabetically:

Part 1—All products, with prices
Part 2—Listing by manufacturers
Part 3—Listing by therapeutic class

An added feature this year—special section with convenient weights and measures charts.

With the McKesson Hospital Reference Book you can find what you want instantly—without poring through many catalogues. And as a follow-through, McKesson will give you delivery—*fast*—of even rare drugs and pharmaceuticals.

- **Complete Hospital Service**—Over 4,000 American Hospit now use McKesson's new, complete hospital services. your local McKesson Hospital Representative show y how McKesson can simplify your buying and ordering from one local source with complete stocks.
- **"Rex" McKay Service**—For latest pharmaceutical inform tion, rely on "Rex" McKay, our Prescription Departm Specialist.
- **Hospital Pharmacy Fixture Service**—Save steps, save sp with McKesson's specialized fixtures designed particula for hospital pharmacies.
- **Personalized Service**—Let the McKesson Hospital Rep sentative tell you about the *personalized* service he can o you, tailored to the needs of your hospital pharmacy.

If you do not have this valuable Hospital Reference Book, s the coupon—or ask "the man from McKesson" for your co

Serving America's Hospitals
BETTER...by McKESSON

Hospital Department, McKesson and Robbins, Inc.
155 East 44th Street, New York 17, N. Y.

Please send me my free copy of the 1957 McKesson Hospital Reference Book.

*Name*_____

*Position*_____

*Hospital*_____

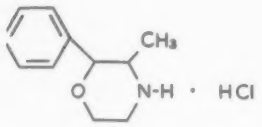
*Street*_____

*City*_____ *Zone*____ *State*_____

Phenmetrazine Hydrochloride

Preludin® Hydrochloride

PHENMETRAZINE HYDROCHLORIDE is 3-methyl-2-phenylmorpholine hydrochloride.—The structural formula of phenmetrazine hydrochloride may be represented as follows:



Actions and Uses

Phenmetrazine hydrochloride is a secondary amine related in pharmacological action to the amphetamine group of compounds. Like amphetamine, it exerts an appetite-depressant effect; it is therefore useful as an anorexigenic agent in the management of simple obesity caused by excessive caloric intake. The mechanism of its effect upon appetite has not been explained. It should be used only as an adjuvant to a weight-reducing program and not as a substitute for conventional measures.

Phenmetrazine hydrochloride produces a stimulating effect on the central nervous system, but in clinical use the side-effects of nervousness, hyperexcitability, euphoria, and insomnia are much less than with the amphetamine compounds and rarely cause difficulty. There have been no reports of significant toxic reactions to the drug, but, on theoretical grounds, it should not be administered to patients with severe hypertension, thyrotoxicosis, or acute coronary disease. It may be used with caution in patients with moderate hypertension and cardiac decompensation. No cases of addiction to phenmetrazine have been reported, but with all drugs causing central nervous system stimulation, including the amphetamines, this possibility must be borne in mind.

Dosage

Phenmetrazine hydrochloride is administered orally. The usual dose for adults is 25 mg. administered two or three times daily, one hour before meals. Because of variations in eating habits and appetite-peak patterns, it is often advisable to adjust dosage to the requirements of the individual patient. Therapy is continued until the patient reaches the desired weight level, and continued dietary restriction is needed to maintain such a level.

Applicable commercial name: Preludin.

Geigy Pharmaceuticals, Division of Geigy Chemical Corporation, cooperated by furnishing scientific data to aid in the evaluation of phenmetrazine hydrochloride.

J. Am. Med. Assoc. **163**:357 **(Feb. 2) 1957.**

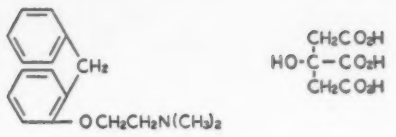
Preparations

Tablets Phenmetrazine (Preludin) Hydrochloride 25 mg., scored.

Phenyltoloxamine Citrate

Bristamin® Citrate

PHENYLTOLOXAMINE CITRATE is N,N-dimethyl-2-(*a* phenyl-*o*-tolyloxy)ethylamine dihydrogen citrate.—The structural formula of phenyltoloxamine citrate may be represented as follows:



Actions and Uses

Phenyltoloxamine citrate is a *β*-dimethylaminoethyl ether of ortho-benzylphenol; as such, it belongs to the group of antihistaminics exhibiting the aminoalkyl ether structure. In addition to an effective antihistaminic action, this compound exerts antifungal and antibacterial activity in vitro; however, its possible clinical usefulness for the latter purposes has not been determined. The incidence of side-effects is low; at recommended doses, soporific effects occur in less than 7% of patients. (See the general statement on histamine-antagonizing agents in New and Nonofficial Remedies.)

Dosage

The average oral dose for adults is 50 mg. three or four times daily. This may be increased if the desired therapeutic response is not obtained or if side-effects do not become pronounced.

Applicable commercial name: Bristamin Dihydrogen Citrate.

Bristol Laboratories Inc. cooperated by furnishing scientific data to aid in the evaluation of phenyltoloxamine citrate.

J. Am. Med. Assoc. **163**:357 **(Feb. 2) 1957.**

Preparations

Tablets Phenyltoloxamine (Bristamin) Citrate 50 mg., scored.

Povidone-Iodine

Betadine®
Isodine®

POVIDONE-IODINE is a complex produced by reacting iodine with the polymer polyvinylpyrrolidone.

Actions and Uses

Povidone-iodine is a water-soluble complex of polyvinylpyrrolidone and iodine. On contact with the skin or mucous membranes, the complex breaks down and inorganic iodine is slowly released. Thus, the drug has been used topically as a mild anti-infective agent for the prevention and control of cutaneous infections susceptible to iodine. These include contaminated wounds, streptococcic and micrococcic (staphylococcic) infections of the skin, and certain infections of the mouth and oral mucosa. The complex has also been employed for preoperative preparation of the skin. It has been tried for the treatment of eczematoid ringworm and oral and vaginal moniliasis.

Because of slow release from the organic complex, povidone-iodine does not produce the stinging or irritation usually experienced after topical application of elemental iodine. Sufficient evidence is not yet available to determine its possible sensitizing properties. The complex may be expected to produce the antimicrobial effects of iodine in general.

Dosage

For topical application to the skin, an aqueous solution containing 1 to 1.5% available iodine is applied as needed. Solutions containing 0.05 to 0.15% available

"The Pharmacy Wields A New Weapon"

Broadswords are not standard equipment in hospital pharmacies these days . . . any more than your hospital's rising cost of overall operation is a flesh-and-blood dragon roaming the corridors.

The truth of the picture, however, is found in the fact that the Pharmacy has become a major revenue-producing department in today's hundred-or-more bed hospital . . . *and the preparation of hospital-made solutions by the ASPF technique is a substantial factor in that trend.*

If your hospital is not yet preparing its own I.V. solutions under your supervision, you have an exceptional opportunity. Through the tested and proved ASPF procedures you can save thousands of dollars for your hospital; add to the prestige of your Pharmacy and materially increase your own importance as a member of the hospital team.

● *Send for your copy of* **"Why Hospitals Should Make Their Own I.V. Solutions"** *or ask your administrator to let you know when the Amsco man calls.*

AMSCO

AMERICAN STERILIZER

ERIE • PENNSYLVANIA

iodine have been used at hourly intervals for the treatment of infections of the mouth and oral mucosa.

Applicable commercial names: Betadine; Isodine.
International Latex Corporation cooperated by furnishing scientific data to aid in the evaluation of povidone-iodine.

J. Am. Med. Assoc. 163:647 (Feb. 23) 1957.

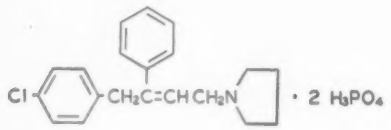
Preparations

Solution Povidone-Iodine (Isodine) 15 ml. bottles.

Pyrrobutamine Phosphate

Pyronil® Phosphate

PYRROBUTAMINE PHOSPHATE is 1-[4-(*p*-chlorophenyl)-3-phenyl-2-butenyl] pyrrolidine diphosphate.—The structural formula of pyrrobutamine phosphate may be represented as follows:



Actions and Uses

Pyrrobutamine phosphate is an effective antihistamine compound with a low incidence of sedation and other side-effects. (See the general statement on histamine-antagonizing agents in New and Nonofficial Remedies.)

Dosage

The average oral dose for adults is 15 mg. three or four times daily. Dosage for children is reduced according to body weight.

Applicable commercial name: Pyronil.
Eli Lilly & Company cooperated by furnishing scientific data to aid in the evaluation of pyrrobutamine phosphate.

J. Am .Med. Assoc. 163:357 (Feb. 2) 1957.

Preparations

Tablets Pyrrobutamine (Pyronil) Phosphate 15 mg., scored.

Report to the Council

The Council has authorized publication of the following report. Nonproprietary terminology is used for all drugs that are mentioned; when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations.

H. D. KAUTZ, M.D., *Secretary*

Therapy in Pneumonias

Current Status

ROBERT AUSTRIAN, M.D., Brooklyn, N. Y.

Pneumonia may be caused by a variety of infectious agents: bacteria, viruses, rickettsias, and fungi. In addition, the disorder may be a primary one or may complicate preexisting pulmonary or systemic disease of an infectious or noninfectious nature. Essential, therefore, to the optimum management of pneumonia is knowledge of the etiological agent and of the pathogenesis of the illness to be treated.

From the Department of Medicine, State University of New York College of Medicine, New York, N.Y.

Laboratory Studies

Before treatment is begun, data derived from a complete history and physical examination of the patient should be at hand. In addition to the routine examination of the blood and urine, other laboratory studies, including posteroanterior and lateral roentgenograms of the chest and a culture of the blood and the sputum, should be performed. A study of the sputum is of especial importance, for, when pneumonia is of bacterial or fungal origin, it provides the most ready means of establishing the etiological agent. Sputum should be collected in a sterile glass container and its characteristics noted. Smears stained by the Gram technique should be examined to determine the predominating bacterial forms, and it is often well also to stain smears by a method that will reveal tubercle bacilli. Sputum should be cultured on nutrient blood agar plates, and, if mice are available, one should be injected intraperitoneally with sputum to facilitate the isolation of pneumococci and Friedländer's bacilli.

When pneumonia is not of bacterial or fungal origin, its presumptive etiology can often be established more readily by serologic techniques than by isolation of the causative agent. Therefore, if the cause of pneumonia is obscure, serum should be obtained within 48 hours after the patient is first seen and should be refrigerated under sterile conditions. Seven to 10 days later, a second sample of serum should be collected, and the reaction of the two samples with appropriate antigens should be studied simultaneously. When facilities for the isolation of viruses and rickettsias are available, they should be utilized.

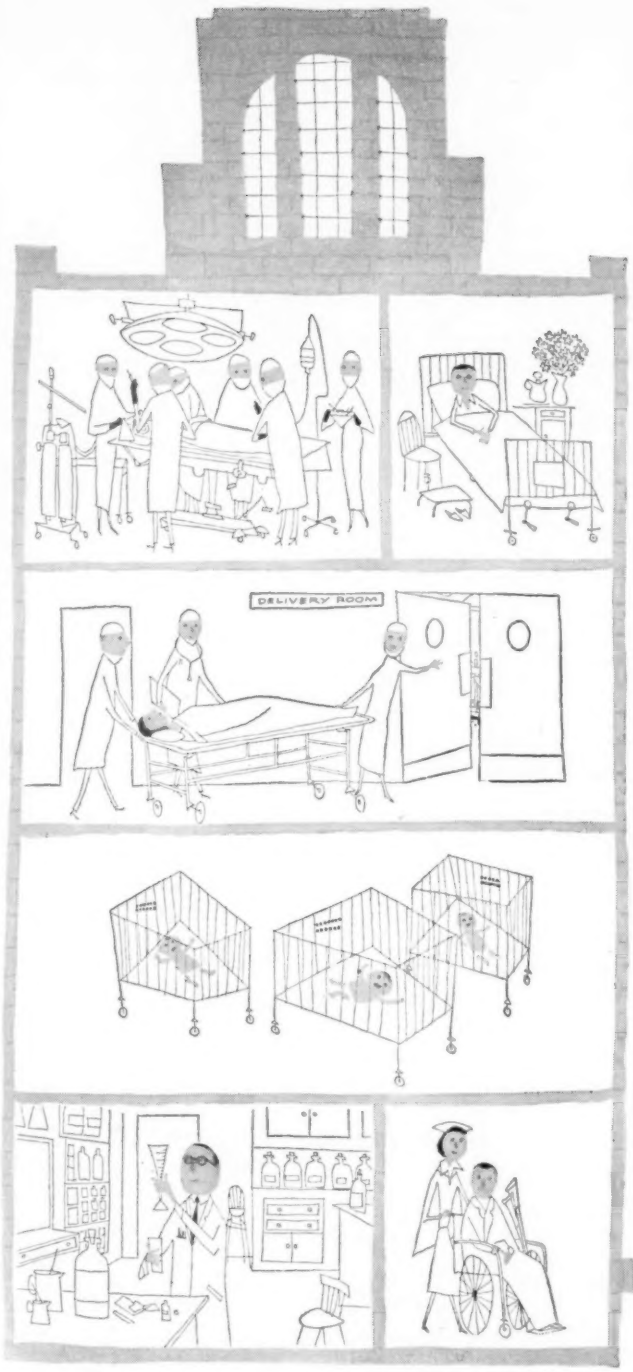
Symptomatic Treatment

The treatment of pneumonia may be divided into two categories: symptomatic and specific. Although great emphasis has been placed in the past two decades upon the specific treatment of pneumonia, symptomatic therapy is nonetheless important and may be the only therapy available when specific anti-infectious drugs are lacking. In addition, failure to pay adequate attention to the many possible physiological derangements that often accompany pneumonia may lessen or nullify the benefit derived from the use of specific antibacterial agents.

The patient with pneumonia should be hospitalized unless the illness is mild and conditions for adequate care can be provided in the home. Respiratory isolation should be practiced routinely, at least until the etiology of the illness has been established. Although many forms of pneumonia are characterized by a low degree of contagiousness, others, especially those of viral origin, are transmitted more readily, and unnecessary risks to those persons caring for the patient are to be avoided.

The patient should be placed in bed and, if acutely ill, should be provided with adequate nursing care. The rectal temperature, pulse rate, and respiratory rate should be recorded at 2-hour to 4-hour intervals throughout the day and night. The nurse should be instructed to report promptly to the physician any change in the vital signs, appearance, or behavior of the patient.

The diet should be light and adjusted to the ability of the patient to ingest it. An adequate amount of carbohydrate should be provided to prevent the development of ketosis, but the maintenance of an adequate caloric intake during the acute phase of illness is not a major concern. In the more protracted varieties of pneumonia, such as that caused by the tubercle bacillus, the provision of an adequate nutritional program assumes greater importance.



WHY SYNKAYVITE?

Synkayvite is a water-soluble vitamin-K compound of high anti-hemorrhagic activity, assuring desired clinical results in obstetrics and surgery.

Synkayvite is convenient and time-saving. 5-mg (1 cc), 10-mg (1 cc) and 75-mg (2 cc) doses are all available in COLOR-BREAK ampuls which nurses open with a flick of the finger. Even the high-potency 75-mg dose is provided in low volume (2 cc).

Synkayvite is kind to the patient. There is normally no stinging or aching, no matter whether it is injected subcutaneously, intramuscularly or intravenously.

From the standpoint of physician, pharmacist, nurse and patient, let Synkayvite be your hospital's vitamin K.

Hoffmann - La Roche Inc •
Nutley • N. J.

Synkayvite® - brand of menadiol sodium diphosphate.

Order direct from 'Roche' at hospital prices ROCHE

Fluids sufficient to insure an adequate flow of urine should be given to the patient; usually 2,500 to 3,000 cc. of fluid per day will suffice. When liquids cannot be taken orally, they may be administered parenterally. Isotonic solutions of sodium chloride supplemented with dextrose are usually satisfactory, but, when cardiac insufficiency complicates pneumonia, salt should be omitted or sharply restricted. Excessive amounts of fluid should not be given because they may lead to the too rapid excretion of specific antibacterial drugs.

Fever is a normal response to infection, and, provided the temperature does not rise above 41.1 C (106 F), it has no untoward effect upon the outcome in uncomplicated pneumococcic pneumonia. Because the antibacterial action of several antibiotics is increased at temperatures above 37 C (98.6 F) and because the temperature curve is one of the most valuable indexes of the success or failure of therapy, attempts to lower the patient's temperature with febrifuges are usually unnecessary and often undesirable. Corticotropin and adrenal steroids should not be employed for their antipyretic effect, for they may interfere with the mobilization of leukocytes at the site of the pulmonary lesion. If lowering the patient's temperature is judged necessary, tepid alcohol sponge baths are the procedure of choice.

Cough is a usual symptom of pneumonia and requires medication only when it becomes unduly harassing to the patient. A dose of 5 mg. of dihydrocodeinone (Dicodid, Dihydrocodeinone) bitartrate given orally, 65 mg. of codeine sulfate, 50 to 100 mg. of meperidine (Demerol) hydrochloride, or 8 mg. of morphine sulfate given orally or hypodermically may be administered at intervals of 4 to 6 hours. It should be remembered that complete suppression of cough is undesirable since it leads to retention of pulmonary secretions.

Thoracic pain, which reflects involvement of the pleural surfaces, is frequently so severe that it interferes with rest and with the normal mechanics of ventilation. Rapid, shallow breathing contributes importantly, in many instances, to the development of cyanosis. Thoracic pain may be alleviated at times by such simple measures as the local application of heat or cold. Limitation of thoracic movement may also be helpful and may be achieved by placing a sandbag against the chest wall or by the application of a taut binder. Strapping with adhesive is undesirable, because it may prove irritating to the skin and it interferes with the examination of the lungs. These physical measures may be supplemented, if necessary, by the administration of such analgesics as codeine or meperidine in the dosages stated above. When immobilization and sedation fail to provide relief from pleural pain, intercostal nerve block with the administration of 1 or 2% procaine solution may be required; however, the need for this procedure is infrequent.

When inability to sleep, restlessness, or delirium occur, the patient may require sedation. Of the many agents available for this purpose, chloral hydrate and paraldehyde are among the more satisfactory. Each may be given orally or rectally in oil. The dose of chloral hydrate is 1 to 2 gm. and of paraldehyde 10 to 15 cc. Barbiturates may be used also, but it should be recalled that they may produce paradoxical excitement in elderly patients. Whiskey in moderation should not be denied the alcoholic patient, especially when pneumonia is complicated by delirium tremens.

In the symptomatic treatment of pneumonia, oxygen is of established value. The principal indication for its administration is cyanosis, although it should be given whenever delirium, severe dyspnea, marked asthenia, or evidences of circulatory derangements are noted. Oxygen in a concentration of 40 to 60% may be administered by means of a face mask, nasal catheter, or tent. Means for ascertaining the concentration of oxygen delivered should be available; adequate precautions against fire should be taken; and an adequate supply of oxygen should always be readily at hand.

Pneumonia may be accompanied by a variety of circulatory disturbances, and, as in any severe intoxication, shock may supervene. In addition to the prompt eradication of the infecting organism whenever possible, other measures may be helpful in the correction of circulatory collapse. When anemia is absent, plasma from one or two donors is the fluid of choice for intravenous infusion, but, when the hemoglobin level is below normal, whole blood should be given. Of the pressor amines, levarterenol (Levophed) is most likely to be of value. It is administered as the bitartrate by intravenous infusion in a concentration of 4 mg. per liter, and the rate of flow is adjusted to the circulatory response. Because levarterenol acts directly on the smooth muscle of vascular walls, it must be administered with adequate precautions to prevent extravasation and local ischemic necrosis. For this reason, it is best given through a plastic catheter inserted through the antecubital vein and passed into the axillary or subclavian vein. Use of the lower extremities for the administration of levarterenol should be avoided whenever possible, especially in the aged.

The use of adrenal steroids to counteract the effects of toxemia upon the circulation involves certain calculated risks. In general, such agents should be used only in overwhelming infections when death appears imminent, when other measures to modify shock have failed, and when control of the infecting organism with antibiotics appears feasible. Doses of 50 to 100 cc. of aqueous adrenal cortex extract or 25 to 50 mg. of hydrocortisone given intravenously every 6 hours may be administered until clinical improvement results.

Digitalis preparations have no part in the routine treatment of pneumonia, and controlled studies have shown that the administration of digitalis in pneumococcic pneumonia results in heightened mortality. When congestive heart failure accompanies pneumonia, however, it should be treated in the usual manner, and, in this situation, digitalis should be given.

Disturbances of gastrointestinal function frequently accompany pneumonia, with such varied manifestations as anorexia, nausea, vomiting, diarrhea, constipation, and paralytic ileus. Acute dilatation of the stomach, which occurs rarely, is a grave complication and should be treated promptly by gastric intubation and aspiration. Because abdominal distention elevates the diaphragm and may increase respiratory embarrassment, it should be prevented or treated promptly when it occurs. An enema of plain soapsuds or one with the addition of 30 cc. of hydrogen peroxide per liter or 8 cc. of turpentine per liter will often stimulate peristalsis. Enemas should be followed by the insertion of a rectal tube if distention persists. If these measures are ineffectual, 1 mg. of neostigmine methylsulfate may be given intramuscularly.

To prevent the development of decubitus ulcers, the skin should be kept clean and dry at all times. A bed bath should be given daily, and the bed clothing should be changed as often as necessary if the patient perspires profusely or is incontinent of urine or feces. Herpetic lesions about the face are often annoying and may be treated by the application of bland ointments or of compound tincture of benzoin. Local application of antibiotics is unnecessary.

BUFFERIN®

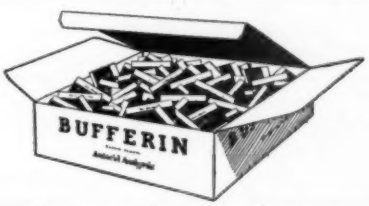
The better-tolerated salicylate for hospital patients

When patients complain of *headache, or other minor aches or pains,* BUFFERIN gives fast relief but seldom causes gastric upsets, even in large doses.[1]

Although arthritic patients are markedly more susceptible to straight aspirin than the general population, they tolerate BUFFERIN well.[2]

Each BUFFERIN tablet contains 5 grains acetylsalicylic acid plus the antacids magnesium carbonate and aluminum glycinate.

BUFFERIN contains no sodium.



BUFFERIN is easy to dispense when you use the convenient Hospital Package—250 individual aluminum foil-lined packets, each containing two BUFFERIN tablets. Economical, too. Each dose costs you only 1¼¢.

References: 1. Ind. Med. 20:480, 1951. 2. J.A.M.A.: 158:386 (June 4) 1955.

Bristol-Myers Company, 19 West 50 Street, New York 20, N. Y.

Treatment for Bacterial Pneumonias

The past two decades have witnessed the development of a number of chemotherapeutic and antibiotic medicaments effective against a variety of the infectious agents that may cause pneumonia. Generally, these drugs exert their inhibitory or lethal effects upon bacteria, though some are effective against rickettsias and certain of the viruses and fungi. Their maximum usefulness in the management of any illness, however, depends upon knowledge of the etiological agent and the proper choice of the drug or drugs most likely to bring about recovery. For this reason, the diagnosis and classification of pneumonia in etiological rather than anatomic terms is preferred.

Pneumococcic Pneumonia.—Despite frequent statements to the contrary, pneumococcus remains the most common cause of bacterial pneumonia in the temperate zone, and, if experience in a large city hospital may be taken as representative, the incidence of pneumococcic pneumonia has not declined in recent years. The unavailability of pneumococcic typing serum and the difficulty in identifying the pneumococcus accurately by other bacteriological techniques have been responsible in part for the opinion that pneumococcic disease is less prevalent now than heretofore. The pneumococcus is highly susceptible to the action of a number of antibacterial drugs and, with few exceptions, fails to give rise to mutants resistant to their action. For this reason, drug sensitivity tests with pneumococcus need be performed but rarely. The drug of choice for the treatment of uncomplicated pneumococcic pneumonia is penicillin. As shown in the early clinical studies of this drug, the amount of penicillin required to successfully treat pneumococcic pneumonia is quite small in relation to present-day dosage schedules. When infection is confined to the lung, 300,000 units of potassium or sodium penicillin G or procaine penicillin G given intramuscularly twice daily will provide adequate therapy. When shock is present, water-soluble salts of penicillin G should be given intravenously. In the management of mild and moderately severe infections, limited experience suggests that phenoxymethyl penicillin (penicillin V) (Pen-Vee, V-Cillin) given orally in doses of 400,000 units (0.25 gm.) at intervals of 8 to 12 hours may replace parenteral treatment with injectable penicillin G after an initial dose of the latter has been given.

In the treatment of patients sensitive to penicillin or those in whom the cause of infection is uncertain, other drugs may be used. The tetracyclines, chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and tetracycline (Achromycin, Panmycin, Polycycline, Steclin, Tetrabon, Tetracyn); chloramphenicol (Chloromycetin); and erythromycin (Erythrocin, Ilotycin) are generally as efficient as penicillin in the treatment of pneumococcic pneumonia. Tetracycline hydrochloride or chloramphenicol may be given orally in doses of 0.5 gm. every 6 hours to adults or in comparable amounts by a parenteral route. The dosage of erythromycin is 0.4 gm. every 6 hours.

The use of combinations of antibiotics in treating pneumococcic pneumonia is unnecessary and undesirable, for it not only adds to the cost of treatment but subjects the patient to the increased risk of untoward reactions to medication. Throughout the course of illness the patient should be observed carefully and examined daily. In the absence of complications, antibacterial therapy should be continued until the temperature has been normal for 72 hours. Failure to improve may result from a variety of causes, among which are extrapulmonary spread of infection to the pleura, joints, pericardium, or meninges; sterile inflammatory pleural effusion; superinfection with a different organism; and the development of hypersensitivity to medication.

Micrococcic (Staphylococcic) Pneumonia.—Micrococcic (staphylococcic) pneumonia, which is not a common disorder, is seen most often as an infection of infants, as a complication of infection with the viruses of influenza, and as a form of superinfection during the treatment of pulmonary or extrapulmonary infection with antibiotics. Because most strains of micrococci can give rise to mutants resistant to nearly all the antibiotics currently available, prompt isolation and determination of the sensitivity of a given strain to the drugs of potential value are essential to successful therapy. When such information has been obtained from the laboratory, and, under optimum conditions, it can be had in 36 hours, the patient should be treated with not less than two of the drugs to which the organism is sensitive. Combined therapy tends to lessen the likelihood of survival of micrococcic mutants resistant to any one of the drugs employed, although it does not usually afford absolute protection against such a happening.

When the Micrococcus is sensitive to bactericidal antibiotics such as penicillin, bacitracin, and streptomycin, they are the agents of choice. Penicillin is best used in large doses administered intravenously. Amounts as large as 50 million units or more may be given in 24 hours when the infecting organism is insensitive to its action in vitro in concentrations of less than 25 to 50 units per cubic centimeter. Augmentation of penicillin levels in the body may be achieved by the concomitant administration of the renal tubular blocking agent probenecid (Benemid) in doses of 0.5 gm. every 6 hours. When such large amounts of penicillin are given, the choice of the sodium or potassium salt may be of some importance. Each 10 million units of either of these salts of penicillin G contains the amount of sodium or potassium equivalent to that in 1 gm. of sodium or potassium chloride. Bacitracin may be given intramuscularly in divided doses of 1,500 to 2,000 units per kilogram of body weight per day. Streptomycins are best administered intramuscularly as streptomycin or dihydrostreptomycin sulfate in dosages of 30 to 50 mg. per kilogram of body weight per day. Both bacitracin and the streptomycins should be administered with caution to patients with impaired renal function.

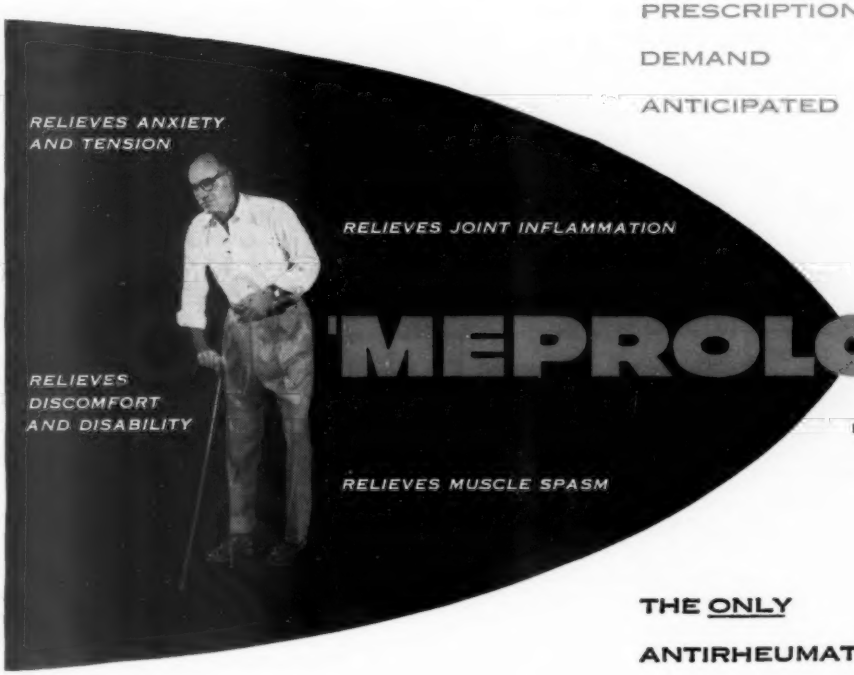
Among the bacteriostatic drugs, the tetracyclines, chloramphenicol, erythromycin, and novobiocin sodium are of potential value and may be used in combination with one another or with streptomycin and/or bacitracin. The oral dosage of each of these antibiotics is 50 to 75 mg. per kilogram of body weight per day administered in divided doses at 6-hour intervals. Preparations for parenteral use are available also.

It should always be remembered that the choice of therapy in micrococcic infections must be determined for each illness and that effective treatment for one patient may fail to bring about the recovery of another. Inadequate progress toward well-being should always prompt bacteriological reexamination of the sputum during the course of micrococcic pneumonia and modification of therapy in the light of the information so obtained.

Streptococcic Pneumonia.—Pneumonia of streptococcic origin is seen infrequently. It may complicate infections of the respiratory tract with the viruses of

NOW RECEIVING ALL-OUT PROMOTIONAL SUPPORT

STOCK
'MEPROLONE' NOW!
AGAINST
THE HEAVY
PRESCRIPTION
DEMAND
ANTICIPATED



MULTIPLE COMPRESSED TABLETS

'MEPROLONE'

MEPRO PREDNISO | BAMATE LONE

buffered

Every year has its big product. In '57, it's 'Meprolone' . . . an unequalled builder of Rx volume and prestige for you.

Each Multiple Compressed Tablet of 'Meprolone' provides the antirheumatic, antiarthritic benefits of:
1. *Prednisolone buffered*—the newest and most potent of the "predni-steroids" for prompt relief of joint pain and arrest of the inflammatory process.
2. *Meprobamate*—the newest and safest of the muscle-relaxant tranquilizers—relaxes accessory musculature in spasm—eases mental tension and anxiety, so often manifest in patients with rheumatic, arthritic disorders.

'Meprolone' is being backed by the most intensive promotional effort. So don't rely on your initial shipment. Order today . . . in quantity . . . and you won't miss an Rx.

Indications: Rheumatoid arthritis, rheumatoid spondylitis, Still's disease, psoriatic arthritis, osteoarthritis, bursitis, synovitis, tenosynovitis, myositis, fibrositis, fibromyositis, neuritis, acute and chronic low back pain, intractable asthma, respiratory allergies, allergic and inflammatory eye and skin diseases.

Dosage: 1 or 2 tablets 3 or 4 times daily.

Supplied: Multiple Compressed Tablets in bottles of 100 in two formulas as follows: 'Meprolone'-1—1.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'Meprolone'-2—provides 2.0 mg. prednisolone in the same formula.

'Meprolone' *is a trade-mark of Merck & Co., Inc.*

THE ONLY ANTIRHEUMATIC, ANTIARTHRITIC THAT SIMULTANEOUSLY RELIEVES:

1. MUSCLE SPASM
2. JOINT INFLAMMATION
3. ANXIETY AND TENSION
4. DISCOMFORT AND DISABILITY

MSD

MERCK SHARP & DOHME
DIVISION OF MERCK & CO. INC., PHILADELPHIA 1, PA.

influenza and the viruses of certain of the exanthems, such as measles. Those infections caused by beta-hemolytic streptococci of Lancefield's group A should be treated in a fashion similar to that employed in pneumococcic pneumonia, except that penicillin should be administered in doses of 300,000 units given parenterally four times a day. Very rarely may infection be caused by nonhemolytic streptococci. Such infections may usually be treated with penicillin alone or supplemented with streptomycin.

Friedländer's Pneumonia—Friedländer's pneumonia, an uncommon infection, occurs most often in males over the age of 30 years and in alcoholics, but it may be encountered in other portions of the population as well. It is caused by encapsulated gram-negative bacilli of the genus Klebsiella and most commonly by types 1 or 2 (Friedländer's bacillus types A or B). Because the acute form of the disease often runs rapidly a fatal course unless effective treatment is instituted within 48 hours after the onset, prompt bacteriological diagnosis is of paramount importance. For this reason, the sputum of a patient with pneumonia should always be examined microscopically after staining by the Gram technique. The presence of large numbers of short, plump, gram-negative rods surrounded by a halo should always prompt a tentative diagnosis of Friedländer's pneumonia.

Like micrococci, strains of Klebsiella vary in their susceptibility to the several antibiotics of potential therapeutic value. For this reason the organism should always be isolated and its sensitivity to drugs tested. Insufficient numbers of patients with Friedländer's pneumonia have been treated with different antibiotics to demonstrate the superiority of one form of therapy over another. Of potential value are the streptomycins, polymyxin B, chloramphenicol, the tetracyclines, and the sulfonamides. Treatment with 1 gm. of chloramphenicol given every 6 hours orally or parenterally and with 1 gm. of streptomycin every 8 hours intramuscularly provides a suitable regimen for initial therapy.

Because pulmonary tuberculosis and Friedländer's pneumonia may coexist in the same patient, it is well to obtain a specimen of sputum for the culture of tubercle bacilli before treatment with streptomycin is initiated. As in micrococcic infections, modification of the therapeutic program may be necessary in the light of laboratory findings. The value of polymyxin B in the management of infections with Klebsiella in man remains largely conjectural, but laboratory data suggest its potential worth. It is administered intramuscularly as the sulfate in dosages of 2.5 mg. per kilogram of body weight per day and should be used with caution in patients with impaired renal function. Patients surviving acute Friedländer's pneumonia may progress to the chronic form of the disease, characterized by pulmonary fibrosis and cavitation, recurring febrile episodes, and the continued expectoration of the causative organism. In the presence of structural changes in the lung, surgery in addition to treatment with antibiotics is usually necessary to effect a cure.

Bacillary Influenzal Pneumonia.—The influenza bacillus, Hemophilus influenzae, is a common pathogen in infancy and early childhood but an infrequent cause of human infection after the age of 6 years. It may, however, give rise to pulmonary complications during epidemics of virus infection of the lung in adults, and occasionally it is the cause of sporadic infection. The detection of the influenza bacillus depends upon proper bacteriological techniques, and the organism may be overlooked if human blood is used to enrich mediums for bacterial growth. H. influenzae is susceptible to the inhibitory effects of several antibiotics, including chloramphenicol, the streptomycins, and the tetracyclines. The administration of chloramphenicol alone or in combination with streptomycin in the same dosages recommended for the treatment of Friedländer's pneumonia should provide adequate therapy in most instances. The sensitivity of the causative organism to streptomycin should be determined, since bacterial resistance to it may nullify at times the usefulness of this drug.

Tularemic Pneumonia.—Tularemic pneumonia, a serious infection, may be suspected in patients with pneumonia who have had contact with wild rabbits or have been exposed to ticks or deer flies in endemic areas. The presence of a cutaneous ulcer and associated lymphadenopathy points also to the diagnosis, but these indications may be lacking. Disturbances of mental function are often profound in this infection. Isolation of the organism is not without hazard to laboratory personnel, and the diagnosis can be confirmed more safely by serial agglutination tests performed with commercially available antigen. The pneumonic form of tularemia, like other forms of this disease, is amenable to treatment with streptomycin sulfate. In adults, the dosage should be 3 gm. a day given intramuscularly. Tetracycline and chloramphenicol are both of potential value in the management of the disorder, but experience with them in the treatment of tularemia in humans is limited. To lessen the likelihood of emergence of streptomycin-resistant mutants of Pasteurella tularensis, either drug may be used to supplement treatment with streptomycin.

Pneumonic Plague.—Pneumonic plague is unknown in the United States at the present time, but sylvatic plague does exist in this country. The diagnosis of plague depends upon awareness that the disease is present and, since the pneumonic form is transmissible directly from man to man, upon knowledge of the patient's exposure to the disease. The causative organism, Pasteurella pestis, may be isolated from the sputum by culture or by inoculation of guinea pigs. Because treatment, to be effective, must be initiated within 20 hours after the onset of the disease, it must be undertaken before laboratory procedures have established the diagnosis. In the treatment of small numbers of patients, streptomycin, chloramphenicol, and oxytetracycline have all proved effective when administered early in the illness. A dose of 1 gm. of chloramphenicol or tetracycline hydrochloride every 6 hours together with 1 gm. of streptomycin sulfate every 6 to 12 hours is recommended. Because of its contagiousness, strict isolation of patients with pneumonic plague is mandatory, and great care must be exercised in the laboratory when working with Past. pestis.

Tuberculous Pneumonia.—When confronted with a case of acute pulmonary consolidation, the physician should always be aware that tuberculous pneumonia may mimic disease caused by other organisms. A history of declining health and hemoptysis prior to the onset of acute illness and the appearance of stigmas of tuberculosis elsewhere in the body may point to the diagnosis, although such clues are frequently lacking. It is wise, therefore, to examine the sputum bacteriologically for the presence of tubercle bacilli whenever a patient with pneumonia fails to respond satisfactorily to drugs directed against the putative cause of illness and whenever protracted fever is accompanied by a normal leukocyte count. In the treatment of any acute

in the hospital the diuretic must work

If the first diuretic used in the patient hospitalized for heart failure is ineffective, it may be too late to try another. For this reason and many others, physicians prefer the dependability of injected MERCUHYDRIN.®

Experience with innumerable patients in several decades of use confirms the uniformly rapid response to MERCUHYDRIN with a minimum of side effects. This assured action saves lives, saves time, saves money. And when recovery is well underway, switching to oral NEOHYDRIN® has the further advantages of saving injections for the patient and time for your nursing staff.

LAKESIDE

A STANDARD FOR INITIAL CONTROL OF SEVERE FAILURE

MERCUHYDRIN®

BRAND OF MERALLURIDE INJECTION SODIUM

FOR MAINTENANCE OF THE EDEMA-FREE STATE

NEOHYDRIN®

BRAND OF CHLORMERODRIN TABLET

15557

inflammatory disorder of the lungs, respiratory secretions to be examined for tubercle bacilli should be collected before streptomycin is administered. If tuberculous pneumonia is present, special studies such as tomography, bronchoscopy, and the tuberculin test may aid in establishing the diagnosis.

Treatment must be individualized and requires the use of at least two of the three drugs currently employed in the chemotherapy of tuberculous infection: streptomycin, isoniazid, and aminosalicylic acid. Streptomycin may be given initially as streptoduocin in intramuscular doses of 0.5 gm. twice daily, aminosalicylic acid orally in doses of 12 to 16 gm. a day, and isoniazid orally in doses of 4 to 10 mg. per kilogram of body weight per day. Pyridoxine (vitamin B_6) hydrochloride should be given in doses of 25 to 50 mg. per day to prevent the development of neuropathy when larger doses of isoniazid are administered. It should be recalled that isoniazid, like streptomycin, accumulates in the body in the presence of impaired renal function. During the course of treatment, which should rarely, if ever, be less than 6 months, the sputum should be reexamined periodically for tubercle bacilli; if they are isolated, their sensitivity to the drugs being administered should be assayed and the treatment modified if necessary in the light of such studies.

Pneumonia Caused by Enteric Bacteria.—Pneumonia is a rare manifestation of infection with Salmonella organisms. Most of the sporadic infections in this country are caused by Salmonella choleraesuis. The disease occurs more frequently in men than in women, and the diagnosis may be made by the isolation of the causative organism from the sputum and blood. The organism is frequently absent from the stool. The infection should be treated with 1 gm. of chloramphenicol given orally or parenterally four times a day.

Pneumonia caused by bacterial species normally resident in the gastrointestinal tract is rarely a primary disorder. It may occur as a terminal event in debilitated persons with other diseases or as a complication of respiratory or nonrespiratory infections treated with antibacterial agents, which suppress the normal flora of the upper respiratory tract, thereby facilitating superinfection. Organisms of the genera Escherichia, Proteus, and Pseudomonas may participate in such infections, and specific treatment must be based upon the sensitivities of the bacteria isolated to the several antibiotics of potential therapeutic value. Very rarely may pneumonia result from infection with obligate anaerobic gram-negative bacilli of the genus Bacteroides. Because of the destructive capabilities of these bacteria, such infections are complicated frequently by pulmonary excavation or empyema. Species of the genus Bacteroides manifest fairly uniform susceptibility to tetracyclines but vary widely in their sensitivity to penicillin and streptomycin. For this reason, treatment of pneumonia caused by these organisms is accomplished most satisfactorily with full dosages of a tetracycline.

Treatment for Viral Pneumonias

The viral pneumonias, like those of bacterial origin, are a heterogeneous group and do not comprise, therefore, a single disease entity. Pneumonitis may result from infection with viruses of the psittacosis-ornithosis group, with those of influenza A and B, with several members of the adenovirus (APC-RI) group, with Eaton's virus of primary atypical pneumonia associated with the formation of cold hemagglutinins, and with viruses of certain of the exanthems of childhood.

With the advent of the sulfonamides and the recognition that certain respiratory infections were insusceptible to their action, interest in nonbacterial pneumonia was aroused. This interest was heightened during World War II by the occurrence of epidemics in military and civilian populations of nonbacterial pneumonia of apparent viral origin associated often with the appearance of cold hemagglutinins. Since the cessation of hostilities and the decline in shifts of population, the incidence of such outbreaks of pneumonia has lessened and is confined largely to such closed population groups as those found in schools and military installations. Investigations of the cause of such infections have continued, however, and, with the introduction of new techniques for the isolation and propagation of viruses, several such causative agents have been defined. As a result of these and of clinical studies, it appears doubtful that any of the pneumonias of viral origin are amenable to therapy other than symptomatic therapy, with the exception of infections caused by viruses of the psittacosis-ornithosis group.

Whenever it has been possible to identify the causative agent of a viral pneumonia (with the aforementioned exception), no effect in vitro or in vivo has been observed to follow the use of antibiotic drugs. Although there are several reports of seemingly beneficial effects after administration of tetracyclines, their value remains in doubt. In the few studies of large numbers of patients that have been controlled adequately, no effect has been demonstrable in those treated with this group of antibiotics. Because the mortality is low in most pneumonias of viral origin and because specific therapy is lacking for most such infections, symptomatic treatment is the procedure of choice. When life appears to be in jeopardy, the use of a tetracycline may be justifiable in the hope that the etiological agent, if undefined, may be susceptible to its action. The value of antibiotics in preventing the superimposition of bacterial infection in viral pneumonia is problematical.

Infection with a virus of the psittacosis-ornithosis group may be suspected whenever the patient with pneumonia has had contact with any of a wide variety of avian species. The etiological diagnosis may be established definitely by the isolation of the causative agent or presumptively by serologic tests. Such infection is amenable to therapy with drugs of the tetracycline group, and one of them should be employed in full therapeutic amounts. The dosage for adults of either chlortetracycline, oxytetracycline, or tetracycline (usually given as the hydrochloride) should be 0.5 to 1 gm. given every 6 hours orally, or 2 gm. a day given parenterally.

Treatment for Pneumonias of Rickettsial Origin

Q fever, a rickettsial disease caused by Coxiella burnetti, is seen most commonly in persons having contact with infected cattle or the products of animal husbandry and in laboratory personnel working with the organism who are infected accidentally. Because C. burnetti may survive in milk subjected to pasteurization, the disease may occur also in milk drinkers. Pulmonary infiltration is a frequent manifestation of Q fever, and the disorder may be indistinguishable clinically from viral pneumonia. The diagnosis may be established by the isolation of C. burnetti from the blood or by serologic techniques. In addition to benefiting from symptomatic treatment, patients with Q fever may manifest clinical improvement after treatment with a tetracycline. The tetracyclines are not directly rickettsiocidal in this infection, for organisms may be

highly effective—clinically proved

Sigmamycin*

OLEANDOMYCIN TETRACYCLINE

provides added certainty in antibiotic therapy particularly for that 90% of the patient population treated in home or office...

Multi-spectrum synergistically strengthened SIGMAMYCIN provides the antimicrobial spectrum of tetracycline extended and potentiated with oleandomycin to include even those strains of staphylococci and certain other pathogens resistant to other antibiotics.

Supplied: SIGMAMYCIN CAPSULES—250 mg. (oleandomycin 83 mg., tetracycline 167 mg.), bottles of 16 and 100; 100 mg. (oleandomycin 33 mg., tetracycline 67 mg.), bottles of 25 and 100. SIGMAMYCIN FOR ORAL SUSPENSION—1.5 Gm., 125 mg. per 5 cc. teaspoonful (oleandomycin 42 mg., tetracycline 83 mg.), mint flavored, bottles of 2 oz.

*Trademark

Pfizer

PFIZER LABORATORIES, Brooklyn 6, N. Y.
Division, Chas. Pfizer & Co., Inc.
World leader in antibiotic development and production

recovered from the blood of patients with demonstrable levels of the drug in the circulation. A significant proportion of patients so treated, however, may experience a more prompt return to well-being than those who are not.

Treatment for Pneumonias of Fungal Origin

A variety of fungi may give rise to primary acute pulmonary inflammation, and several may be associated with the phenomenon of superinfection. In the former category are Histoplasma capsulatum, Coccidioides immitis, and Blastomyces dermatitidis, and among the latter are species of Aspergillus and Candida (monilia). Pulmonary infections with other species of fungi, such as Actinomyces and Cryptococcus, give rise more commonly to chronic disease, often insidious in onset, resembling chronic pulmonary tuberculosis in its course. Recognition of pneumonias of fungal origin requires knowledge of the geographical areas in which they are endemic and of the occupations with which they are associated. Special cultural techniques are required for the isolation of many organisms in this group.

Specific therapy is lacking for the treatment of histoplasmosis, coccidioidomycosis, and aspergillosis. The stilbamidines, of which hydroxystilbamidine isethionate is the drug of choice, may exert a beneficial effect in the treatment of blastomycosis. Because of their toxicity and instability, the stilbamidines must be administered with due precautions. Pulmonary moniliasis may be suppressed by nystatin (Mycostatin) in oral doses of 500,000 units daily, though definitive cure may be difficult to effect. The concomitant administration of potassium iodide is of uncertain value.

Summary

It is evident that acute primary infection of the lungs may be caused by a wide variety of parasites. For the treatment of certain of these infections, specific drugs are available; but, for others, reliance must be placed on symptomatic therapy. In every instance, an attempt should be made to establish the etiology of pneumonia in order that decisions regarding the use and choice of specific therapeutic agents may be made on a rational basis. It should be remembered also that pneumonia may complicate other pulmonary disorders, such as tumor, infarct, or abscess of the lung, and that recurrence of pneumonia in the same pulmonary segment should always suggest a persisting local anatomic abnormality. Only by combining complete anamnesis and examination with intelligent use of the laboratory can optimum results be obtained in the management of pneumonia.

Report To The Council

The Council has authorized publication of the following report. Nonproprietary terminology is used for drugs that are mentioned; when such terminology is not considered to be generally well known, its initial appearance is supplemented by parenthetic insertion of names known to be applied to commercial preparations.

H. D. KAUTZ, M.D., *Secretary*

Coronary Artery Disease

Current Status

LAURENCE B. ELLIS, M.D.
and
ERNEST W. HANCOCK, M.D., Boston

Coronary atherosclerosis occurs to some extent almost universally in human beings. It is now the leading cause of death in persons past middle life in the United States. Significant coronary artery disease is found much earlier and in a more severe form in men than in women. Coronary atherosclerosis is also more pronounced in association with conditions in which hypercholesteremia is present, such as diabetes and hypothyroidism. Undoubtedly a constitutional trait predisposes certain families, and possibly certain racial stocks, to premature coronary atherosclerosis although the latter has not been proved. To what extent the physical and emotional stresses of life influence the development of this disease has not yet been discovered. Most cardiologists, however, are of the opinion that coronary insufficiency, as manifested either by pain or by myocardial failure, may be hastened by such stresses. The clearest example of this is the precipitation of attacks of angina pectoris by physical or emotional stress in patients subject to this disease.

In evaluating any type of therapy for coronary artery disease, it is important to realize that the disease can be diagnosed clinically only when some breakdown in the coronary apparatus has occurred leading to myocardial dysfunction, such as myocardial infarction, angina pectoris, or heart failure. The only exception to this is the demonstration by roentgenography of calcification of the coronary vessels. Hence, studies of coronary artery disease, particularly the effects of various therapeutic agents on the course of such disease, must depend for their evaluation on the incidence of such breakdowns in the coronary circulation or on autopsy statistics, which are obviously end-results. It is virtually impossible, therefore, to set up a control series of persons not suffering from significant coronary disease, since we have no measure of whether such disease exists. At best it is possible to obtain only statistical indexes, suggesting the value of specific types of treatment or of various diagnostic methods. These are of limited use when applied to individual patients.

Coronary artery disease itself gives no specific physical signs. Cardiac enlargement or changes in heart sounds or murmurs reflect only changes in the state of the myocardium. Similarly, the electrocardiogram only measures the indirect effect of changes in the coronary circulation on the electrical activity of the myocardium or the conduction of the heart beat. Measurements of various blood constituents, such as cholesterol or the lipoprotein fractions or studies by the ballistocardiogram, are of limited usefulness in the study of any given patient. They merely indicate the statistical likelihood of disease.

Associate Clinical Professor of Medicine, Harvard Medical School; Associate Physician, Thorndike Memorial Laboratory, Director, Electrocardiographic Department; and Visiting Physician, Boston City Hospital (Dr. Ellis). Research Fellow, American Heart Association; Assistant in Medicine, Harvard Medical School; and Research Fellow, Thorndike Memorial Laboratory, Boston City Hospital (Dr. Hancock).

NOW! A GENERAL PURPOSE GERMICIDE

WESCODYNE® is an excellent detergent as well as a powerful disinfectant. Provides amazing cleaning action as it disinfects. A time and labor saver. Yet cost is less than 2¢ a gallon at the general-purpose use dilution of 75 ppm available iodine.

WESCODYNE is the single hospital germicide suitable for disinfecting and sterilization procedures in all hospital areas. It is nonselective. This marked biocidal activity offers a much wider range of effectiveness than solutions containing chlorine, cresylics, phenolics or quaternaries. Germicidal capacity is three to four times that of other germicides as tested on successive kills of seven common organisms.

WESCODYNE is the *first, "Tamed Iodine"® hospital germicide.* Nonstaining. Nonirritating. Nontoxic. Its amber color is a constant indicator of germicidal activity. When this color disappears, germicidal power has been exhausted. Send the coupon for full information, including recommended surgical, nursing and hospital procedures.

LARGEST COMPANY OF ITS KIND IN THE WORLD

WEST DISINFECTING Company

WEST DISINFECTING COMPANY, 42-16 West Street, Long Island City 1, N. Y.
Branches in principal cities • In Canada: 5621-23 Casgrain Ave., Montreal

☐ Please send recommended procedures and full information on Wescodyne.
☐ Please have a West representative telephone for an appointment.

Name.....

Position.....

Mail this coupon with your letterhead to Dept. 38

Acute Myocardial Infarction

Myocardial infarction is one of the commonest accidents in the course of coronary artery disease. It is usually caused by thrombosis of a coronary vessel, but it may result from prolonged ischemia secondary to inadequate coronary blood flow. The treatment of the acute phase should be based on knowledge of the sequence of pathological changes that may occur and the potential changes in myocardial function. In the first few days after the onset of the myocardial infarction, ischemic changes leading to necrosis occur in the muscle. During the second and third week healing processes set in, including fibrosis and the development of collateral circulation. In general it takes about 6 weeks for a myocardial infarction of average size to heal. During this initial stage, the heart should be rested as much as possible. Proponents of the complete bed rest treatment for infarction and advocates of the chair treatment agree on the desirability of rest for the myocardium. They differ only as to whether the psychological and physical advantages of sitting in a chair, with increased mental and physical comfort of the patient and reduction of the hazard of peripheral phlebothrombosis, are overweighed by the exertion required to change into this position. Actually no hard or fast rule is needed to govern the treatment of all patients, because their physical status, temperament, and environmental circumstances differ so much. Frequently it is justifiable to get the patient into a chair soon after the acute symptoms have subsided. Some patients should be maintained on therapy with strict bed rest for much longer. In any case, inactivity should be maintained for 4 to 6 weeks for the average uncomplicated case of myocardial infarction.

Diet.—The physician can never be certain what course the disease may take, even if the patient seems to be in good condition when first seen. The patient should be treated as a person with potential cardiac failure; for the first day or two he should be given nothing but fluids or the very lightest diet without salt. After this, depending on the condition of the patient, the diet can be liberalized. Even in patients without symptoms, however, it is wise to give a fairly bland diet, low in fat and without added salt, throughout their convalescence. Regulation of the caloric intake of the diet to the weight requirement of the patient is important, since any obese patient with myocardial infarction will benefit by loss of weight. A weight reduction regimen for such patients should be initiated when they are first seen and treated.

Drug Therapy.—Many physicians tend to overtreat their patients with drugs. In their zeal to give many drugs to prevent possible complications, they may easily do more harm than good. As a general rule it is wise to treat symptoms and complications as they arise. Many cardiologists give oxygen routinely for the first 24 hours after infarction, but in milder cases this hardly seems necessary. Oxygen should be given when cyanosis, pulmonary congestion, or protracted pain is present.

Analgesic drugs should be administered initially in amounts sufficient to control pain. Morphine sulfate given subcutaneously in doses of 10 or 15 mg. is usually advisable at the onset if the pain is severe; it should be injected intravenously if the pain is excruciating or unrelieved. Later the drug should be given only as needed to control pain or the initial anxiety of the patient; the dosage and frequency of administration can be adjusted to suit the individual case. It is frequently possible, after the initial administration of morphine, to substitute meperidine hydrochloride (Demerol Hydrochloride) in subcutaneous doses of 50 to 100 mg. Later, methadone hydrochloride (Adanon Hydrochloride, Dolophine Hydrochloride) given orally in doses of 5 to 15 mg. every 3 to 4 hours or codeine sulfate given orally in doses of 30 mg. every 3 to 4 hours may be adequate. The restlessness of the patient or continued anxiety often can be controlled to some extent by the administration of phenobarbital (15 mg.) four times a day, with larger doses of the barbiturates or other sedatives at night to insure sleep.

Opinion differs concerning the desirability of administering atropine sulfate routinely. It would seem wise to give it in doses of 0.4 mg. subcutaneously three or four times a day when large doses of opiates are given, when vomiting occurs, or when the heart rate is unusually slow with or without atrioventricular block.

Indications for the use of digitalis in acute myocardial infarction are the same as those that apply generally: congestive failure and auricular fibrillation or flutter. It is not indicated at other times. Patients who have an elevated heart rate caused by a sinus tachycardia but who do not have heart failure are usually not helped much by digitalis. It is better to avoid intravenous administration of large doses at one time unless an acute emergency exists, since the heart of the patient with an acute myocardial infarction is potentially hyperirritable. Also, digitalis may initiate a grave arrhythmia if given in excess or too rapidly. When the indications for digitalis are clear, the patient initially should be given the drug orally or in small divided doses intravenously. For oral administration, digitalis leaf can be given in doses of 0.2 gm. three times the first and second days, twice the third day, and then 0.1 gm. twice daily until signs of full digitalization appear. Alternatively, 0.1 mg. of digitoxin may be substituted for the 0.1-gm. dose of digitalis, in the same dosage schedule. If necessary, digitoxin can be given intravenously in the same dosage as it is given orally.

When doubt exists as to whether digitalis is indicated or whether patients who have received some digitalis have had a sufficient amount, it is better to use a rapidly acting drug of short duration so that it will be possible to adjust the dosage quickly to the requirements of the patient or to omit it if the administration produces deleterious effects. For this purpose, either digoxin or lanatoside C (Cedilanid) is excellent and can be given either orally or intravenously. Their effects occur rapidly and are dissipated in 1 or 2 days. The total digitalizing dosage of digoxin given intravenously is 1 to 1.5 mg. and of lanatoside C about 1.5 mg.; the drug should be administered in divided doses over a period of several hours at least. When rapid oral digitalization is desired, about 2 mg. of digoxin should be administered. The average maintenance dose of this drug is 0.5 mg. given orally, although many patients require more and some less.

Complications.—Shock is one of the gravest complications of myocardial infarction. Initial shock accompanying pain for the first hour or two is not uncommon. At this time the patient may be gray and pulseless but often recovers very rapidly after administration of opiates and oxygen. If shock persists or develops later, it is an ominous sign and demands vigorous treatment. The so-called shock position of the patient applies in myocardial infarction as in other types of shock. Unless dyspnea is greatly increased,

NOW RECEIVING ALL-OUT PROMOTIONAL SUPPORT

STOCK
'MEPROLONE' NOW!
AGAINST
THE HEAVY
PRESCRIPTION
DEMAND
ANTICIPATED

MULTIPLE COMPRESSED TABLETS

'MEPROLONE'

MEPRO | BAMATE
PREDNISO | LONE
buffered

Every year has its big product. In '57, it's 'Meprolone' . . . an unequalled builder of Rx volume and prestige for you.

Each Multiple Compressed Tablet of 'Meprolone' provides the antirheumatic, antiarthritic benefits of:
1. *Prednisolone buffered*—the newest and most potent of the "predni-steroids" for prompt relief of joint pain and arrest of the inflammatory process.
2. *Meprobamate*—the newest and safest of the muscle-relaxant tranquilizers—relaxes accessory musculature in spasm—eases mental tension and anxiety, so often manifest in patients with rheumatic, arthritic disorders.
'Meprolone' is being backed by the most intensive promotional effort. So don't rely on your initial shipment. Order today . . . in quantity . . . and you won't miss an Rx.

Indications: Rheumatoid arthritis, rheumatoid spondylitis, Still's disease, psoriatic arthritis, osteoarthritis, bursitis, synovitis, tenosynovitis, myositis, fibrositis, fibromyositis, neuritis, acute and chronic low back pain, intractable asthma, respiratory allergies, allergic and inflammatory eye and skin diseases.

Dosage: 1 or 2 tablets 3 or 4 times daily.

Supplied: Multiple Compressed Tablets in bottles of 100 in two formulas as follows: 'Meprolone'-1—1.0 mg. prednisolone, 200 mg. meprobamate and 200 mg. dried aluminum hydroxide gel. 'Meprolone'-2—provides 2.0 mg. prednisolone in the same formula.

'Meprolone' *is a trade-mark of Merck & Co., Inc.*

THE ONLY ANTIRHEUMATIC, ANTIARTHRITIC THAT SIMULTANEOUSLY RELIEVES:

1. MUSCLE SPASM
2. JOINT INFLAMMATION
3. ANXIETY AND TENSION
4. DISCOMFORT AND DISABILITY

MSD

MERCK SHARP & DOHME
DIVISION OF MERCK & CO., INC., PHILADELPHIA 1, PA.

such patients often benefit from elevating the foot of the bed. Transfusions or plasma infusions, both given intra-arterially and intravenously, have been tried on numerous occasions, but most of the evidence does not suggest that they are of help in cardiogenic shock.

Vasopressor drugs may be of considerable value, but it has not been definitely demonstrated whether their beneficial efforts are due to peripheral vasoconstriction or to a stimulating action on the heart. The most effective agent is levarterenol (Levophed) bitartrate, which will often bring blood pressure up to respectable levels and promptly eliminate the symptoms of shock. The disadvantage of this drug is that it has to be given by continuous intravenous infusion; if it is administered over a period of time, it preferably should be given by intravenous catheter to avoid the intense irritating effect when it is extruded from the vein or on the venous wall itself. Dosage must be individualized and the rate of infusion constantly regulated; hence the patient requires constant attendance. It is advisable to start with a concentration of 4 mg. in a liter of 5% glucose and water and to increase the concentration of the levarterenol if the administration at 30 drops (2 cc.) per minute is not effective in maintaining an adequate blood pressure. Other drugs that are less satisfactory but sometimes remarkably effective and that can be given until the levarterenol can be started are phenylephrine hydrochloride (Neo-Synephrine Hydrochloride) in 5 mg. doses administered subcutaneously or intravenously every 15 minutes or less often or mephentermine sulfate (Wyamine Sulfate) in 15 mg. doses administered intravenously or subcutaneously or in an intravenous drip containing 35 to 70 mg. in 100 cc. of 5% glucose and water.

Cardiac irritability can occur in the course of a myocardial infarction. This is manifested by either auricular or ventricular premature beats or by more significant arrhythmias, such as auricular flutter or fibrillation and auricular or ventricular tachycardias. It is not advisable to administer drugs prophylactically to counteract such irritability unless the patient has a history of an arrhythmia prior to the onset of infarction; however, it is good practice to give 0.25 to 0.5 gm. of procainamide (Pronestyl) hydrochloride or 0.2 to 0.4 gm. of quinidine sulfate every 6 hours if premature beats are present. A more serious arrhythmia should be treated in the conventional fashion with larger doses of these agents. If the arrhythmia is auricular fibrillation or flutter, digitalis is usually considered more appropriate as an initial measure.

Atrioventricular block is another complication of myocardial infarction. First degree heart block is of no particular consequence and requires no specific treatment, although atropine may be tried. In patients with higher grade heart block, there is always the danger of Adams-Stokes attacks. Such blocks need not be treated specifically unless syncope does occur or the ventricular rate is unusually slow. In that case the attacks should be treated as they would be under other circumstances; namely, with 25 to 50 mg. of ephedrine sulfate given orally every 3 to 4 hours or, if necessary, with epinephrine given subcutaneously or intramuscularly or with slow intravenous infusion of epinephrine hydrochloride 1:100,000. Although a physician may hesitate to give either ephedrine or epinephrine to patients with myocardial infarctions, the occurrence of Adams-Stokes attacks is a medical emergency that requires whatever specific treatment is most effective.

Use of Anticoagulants.—After anticoagulants were first introduced and a combined study was made under the auspices of the American Heart Association, it was recommended that anticoagulants be given routinely to all patients with acute myocardial infarction. In recent years the tendency by some has been to restrict the use to selected cases, partly because regulation of the dosage is not without difficulty and a certain risk. The bulk of the evidence, however, still favors the idea that anticoagulants do reduce thromboembolic complications and, consequently, reduce the mortality rate in myocardial infarction, especially by their protective effect against pulmonary infarction. There is also some evidence that the long-term use of anticoagulants favors a reduction in incidence of peripheral embolization from an intracardiac mural thrombus. Whether anticoagulants limit further thrombosis in coronary vessels and thus decrease the tendency to extension of an infarction or a recurrence has not clearly been shown. One disadvantage of anticoagulants is that when they are first used they must be given in a hospital with a laboratory equipped to determine clotting and prothrombin times. In addition, the dosage of anticoagulant drug must be carefully regulated.

The ideal method of administration is to obtain an immediate effect by starting with 50 to 75 mg. of heparin sodium given intravenously or intramuscularly every 4 to 6 hours. This dosage should be regulated so that the clotting time is prolonged to not more than twice the normal time at the end of 3 or 4 hours. At the same time an anticoagulant such as bishydroxycoumarin (Dicumarol) can be given orally. The maintenance dose should be regulated so that the prothrombin percentage is 20 to 30% of normal. When this is achieved, heparin can be omitted. Some evidence indicates that the most effective anticlotting effect of bishydroxycoumarin may not occur until the actual prothrombin level has been reduced; this may require 1 to 3 weeks. Anticoagulants should be continued until the patient is ambulatory.

Prognosis.—The future course of the patient who has suffered a myocardial infarction depends on a number of factors. The first is the state of the coronary circulation as a whole—the extent to which the thrombosis that led to the infarction compromised the total coronary circulation and the degree of widespread atherosclerosis in the coronary vessels. One of the most important events that may affect the future of such a patient is another coronary accident. This is completely unpredictable except on the basis of statistics. In general, however, a person who has had two or more myocardial infarctions within a few months or a year has a worse prognosis than a person who has had a single myocardial infarction. The deterioration of the coronary circulation caused by atherosclerotic changes is not necessarily inevitable and progressive. Nature is constantly developing compensatory mechanisms by the creation of collateral vascular channels. Competition between degeneration and repair continues; whichever wins out determines whether the disease will progress or remit.

The second factor affecting the course of the patient is the integrity of the myocardium. This may have been so damaged by a single huge infarction that chronic heart failure results. If the myocardium has already been compromised by previous injury, even a small myocardial infarct may lead to heart failure. The evaluation of such impairment of myocardial function is made largely on the basis of the symptoms of

IN INTRAVENOUS ANESTHESIA

Neraval
SODIUM

"... the shortest-acting thiobarbiturate so far known to us ..."[1]

- **Shorter duration of effect**[1]
- **More rapid, complete recovery**[3,5-7]
- **Diminished cumulative action**[2-4,6,8]

HOW YOUR PATIENT BENEFITS

- Rapid, pleasant recovery.
- Unusual freedom from prolonged postanesthetic depression or "hangover."
- Shortened period of postoperative incapacity.
- Heightened patient morale.

HOW YOUR HOSPITAL BENEFITS

- Less-crowded recovery rooms.
- Shortened postoperative recovery period permits earlier assignment of nurses to other hospital duties.[1]

PACKAGING

NERAVAL Sodium Sterile Powder: vials of 1 Gm. and 2 Gm., boxes of 6 and 25; vials of 5 Gm., boxes of 1 and 25.

BIBLIOGRAPHY

(1) Boone, J.D.; Munoz, R., and Dillon, J.B.: Anesthesiology *17*:284, 1956. (2) Zima, O.; von Werder, F., and Hotovy, R.: Anaesthesist *3*:244, 1954. (3) Fitzpatrick, L.J.; Clarie, D'A., and Mersch, M.A.: To be published. (4) Blake, M.W., and Perlman, P.L.: J. Pharmacol. & Exper. Therap. *117*:287, 1956. (5) Ayd, F.J., Jr.: Neraval: A new anesthetic for electroconvulsive therapy, Paper presented at annual meeting, Electroshock Research Association, Chicago, Illinois, April 29th, 1956. (6) Irwin, S.; Stagg, R.D.; Dunbar, E., and Govier, W.M.: J. Pharmacol. & Exper. Therap. *116*:317, 1956. (7) Reifferscheid, M., and Dietmann, K.: Deutsche med. Wchnschr. *79*:638, 1954. (8) Dietmann, K.: Deutsche med. Wchnschr. *79*:1748, 1954.

NERAVAL® Sodium, brand of methitural sodium.

Schering

NE-J-5116

which the patient complains, such as weakness or dyspnea on exertion. Progressive enlargement of the heart after a myocardial infarction suggests poor myocardial function and is a poor prognostic sign.

The third factor is the possibility of a sudden disorder of the heart beat, either of the nature of heart block or cardiac irritability. This varies from a minor arrhythmia to lethal heart block or ventricular fibrillation. Unless recurrent, such disorders are largely unforeseeable and unpreventable and should be treated in the same manner as disorders of the heart beat are treated during the course of acute myocardial infarction.

Angina Pectoris

Angina pectoris is the symptom of pain of recurrent coronary insufficiency occurring under the stress of physical exertion or emotion. Typically it first occurs under unusual stress; however, the disease may progress so that pain is more and more easily provoked until finally a state of angina decubitus is present, with pain occurring at rest or during the night. The course of the disease of patients with angina is highly variable. The degree of severity may remain unchanged for many years and not infrequently regresses. The sudden onset or aggravation of angina easily provoked by minimal exertion suggests that an acute change in the coronary circulation has occurred and a myocardial infarction is present or is impending. Even if an acute myocardial infarction cannot be demonstrated, such a patient should be treated for the initial 2 or 3 weeks as though it had occurred.

Drug Therapy.—The objective of the treatment of patients who suffer from angina pectoris is to adjust their lives as far as possible at a level below that which brings on pain. Drug therapy should be resorted to only if control of the patient's routine of living does not prevent attacks. The drug of choice is glyceryl trinitrate (nitroglycerin) given sublingually. The initial dose should not exceed 0.3 mg., since distressing and occasionally alarming reactions may occur with larger doses. If this dose is ineffective and the patient experiences no unpleasant side-effects, larger doses may then be used. The patient should be encouraged to take the drug freely if he cannot avoid attacks of pain. If his daily routine involves certain activities that are almost sure to produce an attack, such as walking home from the bus in the evening, glyceryl trinitrate in very small doses may be quite effective in preventing an attack. If angina pectoris occurs immediately after an acute myocardial infarction and if these attacks are relieved by glyceryl trinitrate, the drug may be administered provided it is not given in such large doses as to lower the blood pressure to an alarming extent. It is useless to continue glyceryl trinitrate therapy for angina pectoris if it is ineffective in relieving the attacks of pain. The relief of pain will begin 1 to 3 minutes after administration if the drug itself plays a part in the relief of the attack and if the tablets are sufficiently small and soluble.

Investigators disagree as to whether long-acting vasodilator drugs are of specific value in diminishing the number of attacks of angina pectoris. Of the long-acting nitrites, pentaerythritol tetranitrate (Peritrate Tetranitrate) appears to be the most effective. It may be given in doses of 10 mg. three or four time a day before meals; if this is ineffective, the dose may be doubled. The use of this drug is limited by its frequent irritant effect on the intestinal tract. The evidence as to whether other vasodilator drugs are of value in angina pectoris is equivocal. There is no evidence that the routine use of vasodilator drugs in patients without symptoms is of any value, either in lessening the danger of future coronary accidents or in improving the coronary circulation itself; therefore, such drugs should be given only for the relief of symptoms and not as routine measures.

Angina pectoris is notably affected by psychogenic influences. Many drugs or other methods of therapy, if administered enthusiastically and with conviction, will ameliorate the number of attacks in some patients, at least for a time. This undoubtedly explains many of the favorable reports on various therapeutic agents and at the same time is a justification for a psychotherapeutic approach, including the judicious use of relaxant drugs in selected patients.

Long-term Management of Coronary Artery Disease

It is not enough merely to instruct a patient who has had an acute infarction as to the number of weeks he must rest and convalesce before returning to work or to tell the patient with angina pectoris that he should limit his activities below the point at which pain occurs. Other things can be done that favor a prolonged life without seriously disrupting a mode of living economically productive and satisfactory. The tendency by some physicians to overemphasize drug treatment of coronary artery disease is often accompanied by a tendency to neglect detailed attention to the proper regulation of the patient's life and habits.

Use of Tobacco and Alcohol.—The attitude of physicians in regard to restricting the use of tobacco or alcohol by patients with chronic coronary artery disease is frequently determined more by the moral or personal attitude of the doctor toward these substances than by any rational medical standards. There is no evidence that tobacco does the circulation any good, but some evidence suggests that it may produce mildly deleterious effects. It has not been proved that it aggravates coronary atherosclerosis. On the other hand, tobacco appeals to people all over the world and in all states of civilized development and presumably answers some need. What satisfaction the substance gives is hard to elucidate, but a physician should evaluate very carefully how important it is to restrict the happiness of a patient who is already limited in so many ways. The same applies to the moderate use of alcohol. Its apparent beneficial effect on patients with angina pectoris probably resides more in its sedative action than in any coronary vasodilating action, since the latter has not been demonstrated to exist.

Management of the Disease.—In the proper management of this disease the various burdens on the circulation should be reduced as much as possible. Rest and relaxation are essential. After a myocardial infarction, a patient should gradually increase his activities and can usually return to a sedentary job on a part-time basis within 3 months after his infarction if it is not unduly severe or complicated. He should adjust his life permanently to a more gentle pace than he was living before his illness. The same applies to patients with angina pectoris. Most people can return to their previous occupations and at the same time live at a slower tempo. Unless a patient has disabling symptoms of severe angina or cardiac failure, it is rarely necessary to keep him out of work for a year or more after a myocardial infarction or to have him give up work altogether, unless he is prepared to do so for other reasons.

can you read this thermometer?

Naturally not. Missing calibration makes it worthless.

Equally useless and dangerous is a "quantitative" urine-sugar test that does not quantitate dependably, or omits readings in the critical range.

Enzyme urine-sugar tests are sensitive and specific for glucose—excellent "yes" or "no" tests but undependable for quantitation. King and Hainline,[1] after testing 1,000 urines, found an enzymatic urine-sugar test unable to distinguish in the important range between ½ per cent and 2 per cent or more of urinary glucose. Leonards,[2] in a report on 4,020 tests, revealed that "...in 502 out of 804 tests the wrong interpretation was made." He concluded that enzymatic urine-sugar testing "...as a quantitative procedure is unsatisfactory and can lead to serious error in the interpretation of a patient's clinical condition."[2]

Failure to recognize this limitation of enzyme tests may result in incorrect insulin dosage,[2] and may lead to diabetic complications.

(1) King, J. W., and Hainline, A., Jr.: Commercial Glucose Oxidase Preparations for the Detection of Glucose in Urine, Cleveland Clin. Quart. 23:212, 1956. (2) Leonards, J. R.: Evaluation of Enzyme Tests for Urinary Glucose, J.A.M.A. 163:260 (Jan. 26) 1957.

reliable readings throughout the critical range—
does not omit ¾% (++) and 1% (+++)

color
calibrated
CLINITEST®
BRAND

a 15 year "standard" in urine-sugar testing

AMES COMPANY, INC • ELKHART, INDIANA • Ames Company of Canada, Ltd., Toronto

38187

The second burden that should be removed is excess weight. The well-treated cardiac patient is one who is underweight. Other extrinsic strains on the circulation should be sought and removed if possible, such as anemia or minor infections.

Although evidence is lacking that any therapeutic agent definitely controls the progress of atherosclerosis in human beings, patients with coronary disease cannot wait until proof of the value of certain therapeutic measures is forthcoming. A proper approach is to institute measures that seem likely to produce benefit but to avoid highly experimental, expensive, or drastic measures that may seriously disrupt the person's mode of living and happiness.

Diet.—A relationship exists between atherosclerosis and cholesterol and lipoprotein metabolism, but the nature of this relationship is not definitely known. Some evidence indicates that cultural groups who live on a high-fat diet also seem to suffer from a great deal more coronary atherosclerosis than do groups on a low-fat diet. Although this does not prove that the excess fat is a direct cause of atherosclerosis, it is highly suggestive. Such population groups also are frequently overweight. This also can be corrected by a low-fat diet. It has been suggested that the animal cholesterol content of the diet itself may be particularly responsible; however, experimental work is so controversial that it is hardly justifiable to attempt to eliminate cholesterol completely from the diet or even to put people on a rigid cholesterol restriction. Recently, vegetable cholesterol, such as sitosterol, has been administered to patients in an endeavor to block the absorption of animal cholesterol. Such work, however, is still in the experimental stage, and the routine administration of this substance cannot be advocated at the present time. A reasonable dietary regimen involves limiting the fats in the diet, particularly the animal fats such as butter, cream, sauces, gravies, and fried foods, but at the same time providing a well-balanced and nutritious diet with adequate amounts of proteins and vitamins. Such diets are palatable, not expensive, and not too difficult to obtain. The therapeutic approach to these patients should be based on the assumption that they have years of life ahead and that it is important to make such life as happy as possible.

Experimental Therapy.—Women suffer from much less coronary disease than men until the climacteric, at which time the incidence of disease in women rises sharply. This fact has naturally aroused interest in the value of estrogenic therapy in men as a measure to slow up the progress of atherosclerosis. Controlled studies on the value of such therapy are difficult to obtain for obvious reasons, and such estrogenic therapy will probably have limited application for equally obvious reasons. At the present time it must be considered that such therapy is a highly experimental stage.

Certain chemical agents have been suggested as being of some help in the reduction of atherosclerosis. Among these lipotropic substances are inositol and choline, as well as heparin. Studies in human beings regarding the effectiveness of these substances are still in the experimental stage; the evidence regarding their value is either negative or at best unconfirmed. The widespread routine use of these substances cannot be justified until further knowledge concerning their value is forthcoming.

Recently some interest has developed in the long-term use of anticoagulants in patients suffering from coronary disease. There are a few reports of such studies, all of which suggest that the mortality of patients who carefully follow such a regimen is less than that of patients who have not been receiving anticoagulants. Some suggestive evidence is available that the incidence of further myocardial infarctions is reduced and that angina may even be alleviated. Since most of these studies are not well controlled, it is too early to definitely state that anticoagulants are of real value in such long-term therapy. The patients who are undergoing such treatment must have careful regulation of the dosage of the anticoagulant drug checked by laboratory tests at frequent intervals. There is also a 10 to 15% chance that hemorrhagic complications may occur, some of which may prove to be serious. The number of patients who can and will undergo such therapy is limited, and it should be remembered that this is not yet an established form of treatment. We await the results of well-controlled studies made on a large scale; these are now being planned or already carried on.

Radical Therapy.—Two other types of radical therapy may be used in patients with severe angina pectoris. Such therapy should be reserved for the patient in whom the pain cannot be sufficiently controlled by the methods previously described.

Reduction of thyroid activity by various methods, particularly by the use of radioactive iodine, has been advocated in such patients, because it reduces the oxygen demand by the body. Thus, the heart with limited capabilities of performance may be adequate for the reduced demand. Good results are reported in the majority of carefully studied patients treated in this manner. Such a procedure is proper as long as the hypothyroid state itself is recognized as an additional disease that also may produce distressing symptoms.

The second type of therapy for angina pectoris is some form of surgical procedure designed either to cut nerve pathways or to improve vascularization of the heart by the production of extra coronary channels or even the improvement of the coronary channels themselves. Sympathectomy for angina pectoris has been carried out for a number of years. If properly performed, it produces relief of pain in the majority of patients, although it probably does nothing fundamental to the coronary circulation itself and is a rather formidable procedure.

Operations designed to improve circulation to the heart vary in type and in the risk they carry. They are all experimental; none has been demonstrated actually to improve the vascularization of the human heart. They may give immediate relief of anginal pain, which may persist for months or even years. By what mechanism this relief is accomplished has not yet been demonstrated. The simplest of these operations appears to be as effective in this respect as the more complicated. One simple operation consists of the production of pericardial adhesions by the introduction of an irritant substance and, in addition, often the removal of the epicardial barrier by phenolization. The operative risk of such procedure is very low. Operations of this type are justifiable in patients with truly incapacitating pain. They provide relief for a substantial time in the majority of instances; they may even improve the oxygen supply to the heart.

LETTERS

Membership Pins Appreciated

DEAR SIRS: Thank you very much for the membership pin which was recently sent to me.

However, the pin arrived in a damaged condition with the mortar and pestle being separated from the green cross background. After consulting with three local jewelers, they advised that it would be impossible to re-solder the two parts together . . . They suggested that I bring this matter to your attention.

Thank you for your kind consideration and please advise what, if anything, can be done.

JOHN F. GILLEN, JR.
612 Sixth Avenue
New Hyde Park, New York

EDITOR'S NOTE: If there are other members who have received damaged pins, please return to the Washington Office for replacement. Address: Mr. Paul Parker, Division of Hospital Pharmacy, American Pharmaceutical Association, 2215 Constitution N.W., Washington 7, D.C.

DEAR SIRS: My thanks for the ASHP lapel pin. It is in fine taste and I am sure all members will wear it with pride.

McKesson & Robbins has performed a kind service.

EDWARD P. GANNON, JR.
Wilkes Barre, Pennsylvania

DEAR SIRS: This acknowledges receipt of the insignia of our profession, through the courtesy of McKesson & Robbins, with an enthusiastic thanks and an assurance of its place in my buttonhole . . .

June 9th this year will mark my 60th anniversary as a registered pharmacist, and I appreciate and enjoy the affiliation with the association and its members.

CARL S. PREBLE, *Chief Pharmacist*
Eastern Maine General Hospital
Bangor, Maine

DEAR SIRS: The beautiful insignia is deeply appreciated and will be worn with pride. Please accept my heartfelt thanks . . .

McKesson & Robbins deserves being commended for this splendid gesture.

SISTER GUY LEBRUM
St. Mary's General Hospital
Lewiston, Maine

DEAR SIRS: The pins signifying that we are members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS have been received.

The beautiful design, together with the fine choice of materials, certainly makes a most attractive pin.

Thank you so much for sending them to us.

SISTER M. CARMEL
SISTER M. RIBA
Mercy Hospital
Calvert & Saratoga Streets
Baltimore 2, Maryland

DEAR SIRS: The members of the Utah Society of the Hospital Pharmacists would like to tell you how much we appreciate the ASHP pins and to thank you and McKesson & Robbins for sending them to us.

SHARON CROOK, *Secretary*
Utah Society of Hospital Pharmacists
Salt Lake City, Utah

DEAR SIRS: This is to express my appreciation and thanks for the lovely insignia. I will wear it proudly as a member of the SOCIETY.

FRANK J. STEELE, *Chief Pharmacist*
The Greenwich Hospital Association
Greenwich, Connecticut

DEAR SIRS: Many thanks for the insignia of the ASHP. I shall take pride in wearing it . . .

SISTER MARY JANVIER F.C.S.P.
St. Joseph's Hospital
Vancouver, Washington

DEAR SIRS: This is to express my sincere appreciation for the ASHP pin. I shall be proud to wear it. Also, I wish to thank the firm, McKesson & Robbins, for providing these very attractive pins.

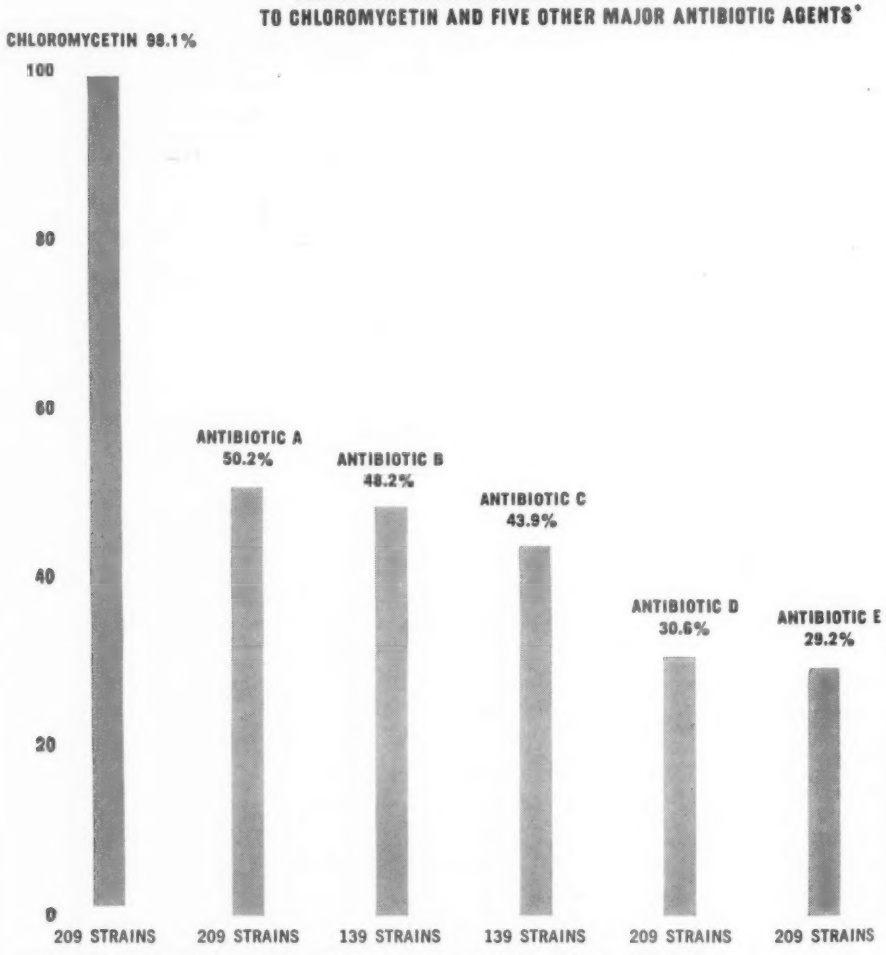
COLEMAN M. TATE
307 Pitt Street
Fredericksburg, Virginia

CLINICAL EXPERIENCE INDICATES FEWER RESISTANT STAPHYLOCOCCI

CHLOROMYCETIN®

COMBATS MOST CLINICALLY IMPORTANT PATHOGENS

STRAINS OF COAGULASE-POSITIVE STAPHYLOCOCCI SENSITIVE TO CHLOROMYCETIN AND FIVE OTHER MAJOR ANTIBIOTIC AGENTS*



*This graph is adapted from Spink, W. W.: *Ann. New York Acad. Sc.* 65:175, 1956.

CHLOROMYCETIN is a potent therapeutic agent and, because certain blood dyscrasias have been associated with its administration, it should not be used indiscriminately or for minor infections. Furthermore, as with certain other drugs, adequate blood studies should be made when the patient requires prolonged or intermittent therapy.

MEDICAMENTA VERA

PARKE, DAVIS & COMPANY · DETROIT 32, MICHIGAN

50119

EDITORIAL

The Hospital Pharmacist and The Law

by Don E. Francke

The law of hospital pharmacy is an important area of knowledge where relatively little has been written. Until recent years hospitals and their professional and administrative personnel were relatively immune under existing laws. However, with the changing role of the hospital in society, the expanded coverage of patients by various forms of health insurance and the general tendency for the courts to relax the charitable immune doctrine, an increasing number of hospitals are being held liable for the acts of their employees. Thus it becomes increasingly important for hospital personnel to be thoroughly acquainted with the principles of law affecting practice in hospitals.

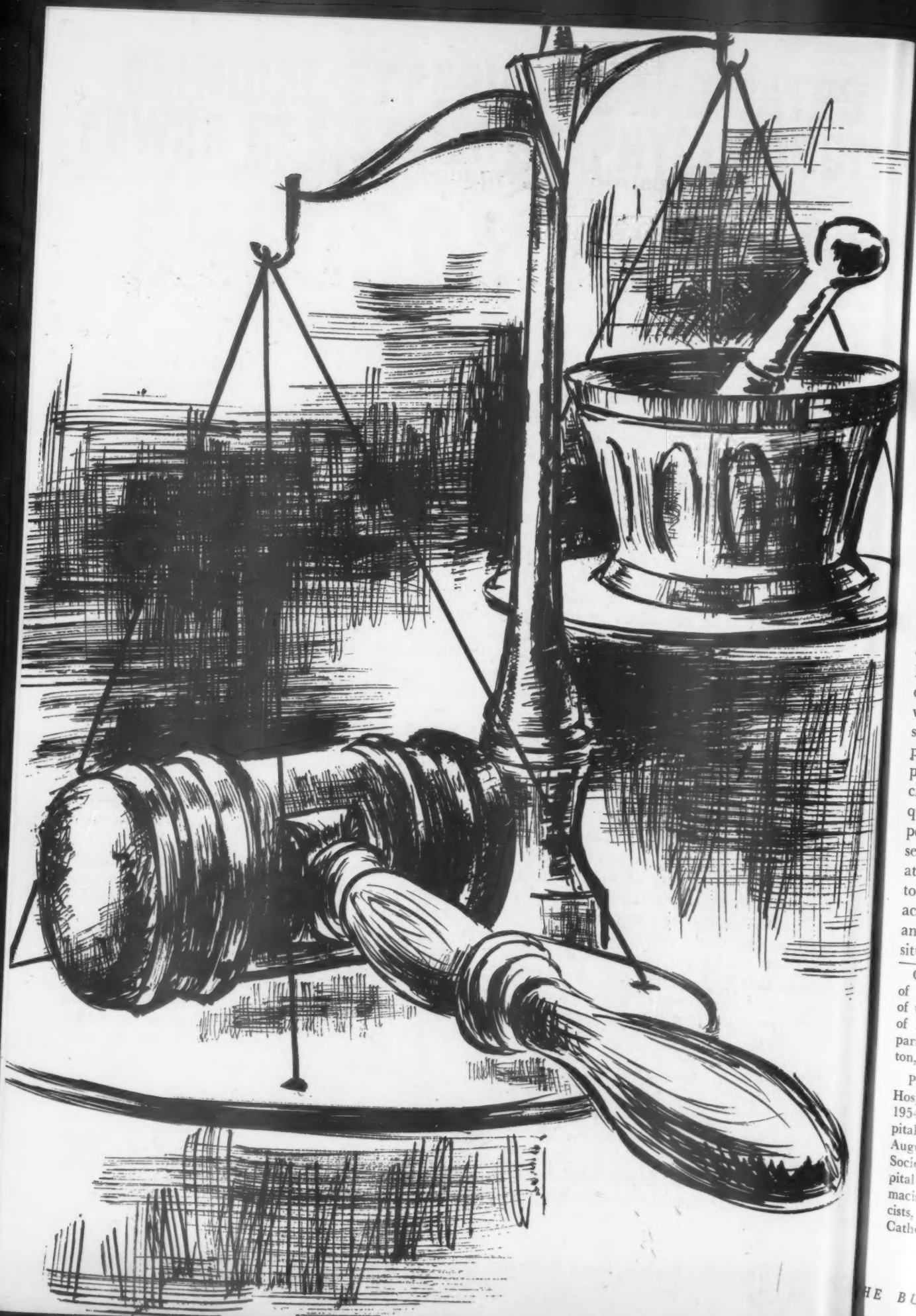
Hospital pharmacists are custodians of the most potent therapeutic agents known. As professional individuals, they have been charged with important personal responsibilities by the Federal, state and local governments in the handling of these drugs. These responsibilities include proper labeling, controlled distribution, proper storage, care in compounding, safe dispensing, maintenance of proper records, etc. In addition, hospital pharmacists are responsible for developing safe procedures for the handling of drugs within their department. Among their important duties is to establish strict limitation upon the duties of non-professional personnel employed in the Pharmacy Department. Adequate safeguards should be imposed so that all tasks involving the handling of drugs are always under the control and direct supervision of the hospital pharmacist.

All of the legal safeguards imposed by any agency of government have, of course, the primary objective of protecting the health and safety of the public. Federal control is exercised by the authority of the Congress to levy taxes and its authority to regulate interstate commerce. The former method is used to control the distribution of narcotics while the latter is the legal basis of the Federal Food, Drug and Cosmetic Act. State and local governments exercise control by their police power, the authority to pass laws promoting public health, welfare, and safety. With authority to regulate matters affecting drugs vested in a large number of agencies including the Federal government, the several states and the countless counties and municipalities, it is apparent that this body of law is exceedingly complex.

By bringing together in one article a number of the basic legal principles pertinent to the practice of pharmacy in hospitals, Dr. George Archambault has performed a great service to his profession. He has provided practicing hospital pharmacists with helpful information which should be thoughtfully considered in the development of departmental policies and procedures. He has carefully emphasized many of the legal implications of pharmacy practice in hospitals. It is certain that his work will make hospital pharmacists more cognizant of their duties to the patient, the hospital, and to themselves as professional individuals. At the same time, he has wisely cautioned his readers to avoid being their own legal counselors, suggesting, rather, that they consult an attorney for guidance when legal problems arise.

One of the perplexing legal problems for some years has been the methods of handling narcotics in hospitals. For several years the special ASHP Committee on Narcotics has conferred with officials of the Bureau of Narcotics in an effort to formulate clear, concise, and acceptable regulations for handling narcotics in hospitals. The report by Arthur W. Dodds and his Committee, beginning on page 318, is the culmination of this task. This report, characterized by its clearness and preciseness, is a splendid work and a most valuable contribution.

As managers and practitioners in an important department of the hospital, hospital pharmacists will welcome the several articles on the law of hospital pharmacy and related subjects which appear in this issue of The Bulletin.



the LAW of hospital pharmacy

by GEORGE F. ARCHAMBAULT

NUMEROUS LEGAL FACTORS are involved in the proper management or administration of a pharmaceutical service in a hospital. In reviewing the law of hospital pharmacy, an attempt has been made to bring some of the more important of these factors to the attention of hospital pharmacists and others who share responsibility for pharmacy service. In doing this, one word of caution is necessary. Law is a complex specialty. It is made more complex by the existence of Federal, State, county and municipal laws, all of which must be considered when an answer is sought to a specific legal question. Thus the purpose of this review is to discuss some of the legal principles involved and to cite some of the decisions made. However, when specific legal questions arise, one should always consult a competent attorney and should never attempt to serve as his own legal counsellor. Nor should one attempt to apply statements made in this paper to specific local situations. Only an attorney acquainted with the entire body of law involved and with the specific circumstances of a given situation is competent to perform this service.

GEORGE F. ARCHAMBAULT, D.Sc., L.L.B., a member of the Massachusetts Bar, is Pharmacist Director, Chief of the Pharmacy Branch, Division of Hospitals, Bureau of Medical Services, U. S. Public Health Service, Department of Health, Education and Welfare, Washington, D. C.

Presented at Institute on Hospital Law, American Hospital Association, Chicago, Illinois, December 15, 1954; presented with modifications at Institute on Hospital Pharmacy, Chicago, June 1955 and Atlanta, August 1955; New England Hospital Assembly; N. Y. Society of Hospital Pharmacists; Ohio Society of Hospital Pharmacists; Maryland Society of Hospital Pharmacists; Western N. Y. Society of Hospital Pharmacists, Buffalo; Law Institute, A.M.A., Atlantic City; Catholic Hospital Association, Milwaukee, Wis.

1. THE COMMON LAW, TORT AND CONTRACT

Charitable Trust Doctrine, Trends

You well know that traditionally, courts were prone to protect charitable trusts to safeguard the funds for their original purposes. Later, as the trustees themselves sought protection for trust funds from the ravages of law suits, by insurance and otherwise, some courts seemed to relinquish responsibility for protecting the assets of eleemosynary corporations. Whether the use of insurance protection came first or the relaxation of the doctrine of charitable immunity is immaterial. Today, a minority of the states still holds strictly to the old charitable trust doctrine. There appears to be a definite trend away from the old theory that a charitable hospital cannot be held liable for injuries to its patients caused by the negligence of its employees.[1] One bright spot on the horizon is the State of Nebraska where the court (1955) has reaffirmed the existence of its charitable trust doctrine as far as inmates, participants, and recipients of charity are concerned.

[1]Massachusetts case - Roosen *vs* Peter Bent Brigham Hospital 235 Mass. 66. A case where corrosive sublimate was substituted for epsom salts. On an action to hold the hospital for corporate negligence in the selection of servants, the court stated "If a hospital is to be held responsible for negligent treatment of patients, there seems to us to be no sound ground for distinction between the negligence of the managers of the hospital and the negligence of subordinate servants as a basis of liability. A sound ground for distinction between exonera-

Status of Hospital Pharmacy

Let us now move on to my assigned topic, "Laws and Statutes Pertaining to Hospital Pharmacy." As background, here is a brief summary of the present status of hospital pharmacy.

The June 1954 Administrators Guide issue of *Hospitals* reports 1,669 hospitals have Pharmacy Committees, each presumably having meetings and written minutes, and 2,537 of the nation's 6,978 hospitals have drug formularies; also we have 43 teaching hospitals giving pharmacy internship and graduate programs in the country, and 32 of the 74 accredited schools of pharmacy giving indoctrination courses in hospital pharmacy. Between 3.5 and 5 percent of the total working population of pharmacists in the United States are currently engaged in hospital pharmacy (3,167 to 5,352).[2]

Police Laws

We all know that states have the right to enact laws to protect the life, health, and welfare of their people. These laws are commonly referred to as the laws under the police power of a state and include among others, the statutes covering licensure of physicians, dentists, nurses, pharmacists, and others, as well as the licensing of hospitals, community pharmacies, and laws controlling traffic in narcotics, hypnotics, other drugs and foods.

All 48 states limit traffic in narcotics and other potentially dangerous drugs to licensed individuals—mainly pharmacists. Today, a pharmacist, by law, is a graduate of a four-year course leading to the degree of B.S. in pharmacy. Those entering schools of pharmacy in 1960 and later, will pursue a five-year curriculum, and plans appear to be in the making for a six-year course consisting of two years of pre-pharmacy collegiate preparation and four years in the school of pharmacy.

The Minimum Standard for Pharmacies in Hospitals[3] prescribes that the department be under—

> "the direction of a professionally competent, legally qualified pharmacist whose training in hospital pharmacy conforms with the standards established by the Division of Hospital Pharmacy of the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS . . . He shall be well trained in the specialized functions of hospital pharmacy and shall be a graduate of an accredited college of pharmacy or meet an equivalent standard of training and experience as set forth in the supplement to these standards.

With this as background material let us consider the hiring of hospital pharmacists.

The Hiring of Hospital Pharmacists

In practice, the hospital administrator should insist that applicants for pharmacist positions show (a) proof of licensure in the state, (b) proof of graduation from an accredited school (and, incidentally, pharmacy schools are accredited "A", "B", "C"), or meet an equivalent standard of training and experience as set forth in the supplements of the ASHP and A.Ph.A. standards, and (c) proof of professional competency and good moral character as indicated by communications with previous employers and medical, dental, and pharmacist associates who have *recent* personal knowledge of the capabilities of the applicant. Also, previous hospital pharmacy experience of good quality is highly desirable.

A three to six-month probation period, satisfactorily completed, would be further evidence of lack of negligence by the hospital in the selection of the pharmacist. Should an accident then occur, a charge of negligence might successfully be defended in some states. In Connecticut, for example, when it is proven that due diligence and care attend the selection of the employee, no liability attaches to the hospital for negligence of its employees under the charitable immunity rule of that state. In a Connecticut case, several years ago, a pharmacist permitted a helper to fill nursing station medication containers. Boric acid was substituted for dextrose. Five infants died as a result. The pharmacist's qualifications had been thoroughly scrutinized before he was employed. The Connecticut Court held the hospital not liable for the negligence of carefully selected employees. Failure to provide proper facilities, space, and safeguards in the pharmacy was immaterial in this instance. However, some states require proper labeling of drugs and poisons, and failure to comply or to furnish reasonable safeguards and precautionary measures may constitute legal negligence. In effect, then, a beneficiary patient of a charitable hospital injured in an accident resulting from negligence, may recover if the state does not have a strict charitable immunity rule on the books

---

tion from liability for the negligence of managers and that of subordinate servants seems equally wanting. Since it is settled that there is no liability for negligence of the latter, it must follow that there is none for that of the former . . . The inevitable result of our own decisions is to relieve a hospital from liability for negligence of the managers in selecting incompetent subordinate agents, as well as for the negligence of such subordinate agents selected with care."

[2]Figures from recent statistics of American Medical Association, American Hospital Association, and National Association of Boards of Pharmacy.

[3]Minimum Standard for Pharmacies in Hospitals as approved by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, the American Pharmaceutical Association, Catholic Hospital Association, and editorially, American Medical Association.

such as in Massachusetts and Connecticut and some eight or more other states.

Administrators and trustees of small hospitals should check the State Hospital Licensing Act, Public Health, Food and Drug, and Pharmacy Laws of their state and engage community pharmacists on a part-time basis, or several hospitals should join and hire (share) one pharmacist or the small hospital may wish to use a pharmacist as a combination administrator and pharmacist (Georgia and Virginia have educational programs of this character for pharmacists) to insure compliance with state laws and adequate pharmaceutical protection for their patients.

Hiring of Nonprofessionals (Pharmacy Helpers)

State Pharmacy Laws, Hospital Licensing Acts, Food and Drug Laws, and state public health laws and their regulations are clear on this point in most states. The use as pharmacists of pharmacy helpers and others not skilled and experienced in the practice of pharmacy as evidenced by state registration is a criminal offense.* In this connection it is pointed out that an administrator is not relieved by law of his responsibility where one pharmacist is employed and the work-load is so great that helpers must perform duties state law limits to the registered practitioner of pharmacy. As a reasonable man, the administrator knows or should know the work-load could not be handled by the number of pharmacists employed.

*Also of serious import is the civil liability of the hospital in negligence suits arising from injuries or deaths where a nonprofessional (pharmacy helper or ward attendant) acts in the capacity of a licensed pharmacist with the consent, expressed or implied, of the hospital.

Degree of Skill and Care Required of the Hospital Pharmacist

In a leading case (Tombari *vs* Connors 85 Conn. 231, 1912[4]) the court found that:

"ordinary care with reference to the business of a druggist must therefore be held to signify the highest practicable degree of prudence, thoughtfulness, and vigilance and the most exact and reliable safeguards consistent with the reasonable conduct of the business in order that human life may not constantly be exposed to the danger flowing from the substitution of deadly poisons for harmless medicine."

Therefore, while the degree of skill and knowledge of a hospital pharmacist is much higher than that expected of a lay person, it need be no higher legally than the skill and learning possessed by the average hospital pharmacist in the same area or state.

[4]Tombari vs Connors 85 Conn. 231 - the pharmacist filled a prescription calling for Calumba gr. v. per powder with Calomel (Mercurous Chloride). Calumba was prescribed in 1912 as a simple bitter. Its dose was up to 30 grs., 3 or 4 times a day. Calomel, a cathartic, was usually prescribed in ¼ gr. doses every 15 minutes until 2½ grs. had been taken (10 doses).

Minimum Standards

In an effort to provide better care of patients in hospitals, those responsible for hospital care have sought and fought for better standards. The earliest effort in this direction was the work of the American College of Surgeons which developed minimum standards for numerous medical and allied services of the hospital, including pharmacy. In 1946, the American College of Surgeons' Minimum Standard for Pharmacy Service in Hospitals was revised by a committee of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. Later, this revision was approved by the Division of Hospital Pharmacy of the American Pharmaceutical Association and the ASHP, the American Hospital Association, and the Catholic Hospital Association and, editorially, by the American Medical Association. Today, the Joint Commission on Accreditation of Hospitals carries out the accreditation program formerly done by the American College of Surgeons. The Joint Commission has recently classified pharmacy as an *essential* hospital service and has formulated a set of questions which are used in the evaluation of pharmacy service. (See page 301 of this issue of THE BULLETIN.)

In an effort to aid hospital pharmacists in the self-evaluation of the pharmacy service they give, the Catholic Hospital Association developed a Point Rating System based upon the Minimum Standard for Pharmacies in Hospitals. This evaluation method has an excellent scoring plan based on a total of 1,000 points and has been widely used by practitioners in hospital pharmacy.

At present, to be accredited by the American Medical Association for medical internship or residency training, a hospital must meet prescribed minimum standards. Also, to be accredited by the Division of Hospital Pharmacy the pharmacy department must comply with the Minimum Standard for Pharmacy Internships in Hospitals as developed by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Further, many states have a hospital licensing act which, in itself and through regulations, constitutes a minimum standard for hospital activities, including pharmaceutical services.

Hospital Licensing Acts

I have here a summary of the hospital licensing acts and regulations of all states, as they apply to facilities, organization, and procedures for con-

ducting pharmaceutical services in hospitals. This document was compiled several years ago by the Division of Hospital Facilities, Bureau of Medical Services of the U. S. Public Health Service.

Indiana's Hospital Licensing Act has one of the better hospital pharmacy regulations and inspection systems. Regulations HHL 14; "Design, Equipment and Maintenance of the Physical Plant - No hospital shall be recommended for license by the Hospital Council, nor shall a license be approved by the State Board of Health unless the following requirements have been fulfilled: . . . There shall be space and facilities for the proper storage of all drugs, supplies and equipment."

As to storage, Regulation HHL 31 reads:

"Storage of Medicine: (a) All medicine, poisons and stimulants kept in a nursing service division shall be plainly labeled and stored in a specially designed medicine cabinet, closet or storeroom, and made accessible only to authorized personnel. The cabinet for drugs shall be well illuminated; (b) Narcotics must be securely locked at all times and accessible only to persons in charge; and (c) All medications shall be discarded when orders have been discontinued or patient has been dismissed."

Concerning the pharmacy itself, Regulation HHL 34 reads:

"Pharmacy: The pharmacy operating in connection with a hospital shall comply with Regulation HHL 31 (Storage of Medicines) and it shall comply with the provision of the Pharmacy Law requiring registration of drug stores and pharmacies and with regulations of the Indiana State Board of Pharmacy and with the provisions of the Indiana Food, Drug and Cosmetic Act, Chapter 38, Acts of 1939 and all regulations promoted thereunder. (a) In hospitals with 25 beds or more the pharmacy or drug room shall be under the full time supervision of a pharmacist licensed to practice in the State of Indiana. (b) In hospitals of less than 25 beds where the drug room is not under the supervision of a licensed pharmacist, the services of a pharmacist in the community, or a pharmacist inspector from the Indiana State Board of Health shall be obtained periodically to consult with the hospital administrator relative to the labeling, storage and dispensing of drugs. (c) The pharmacist shall with approval of the administration of the hospital initiate procedures to provide for the administrative and technical guidance in all matters pertaining to the handling and dispensing of drugs."

Federal, State, and Local Laws

Then there are the Federal Food and Drug Law, the Harrison Narcotic Act, the Marihuana Act, the Internal Revenue Act as it relates to grain alcohol, and the state and local (county or city) counterparts of these, if any. Also, the state and local pharmacy laws and regulations, and other police power laws which may have been promulgated for the protection of the public in the community. I refer here to laws confined exclusively to the practice of medicine, dentistry, nursing, and pharmacy. For example:

1. Hospital *pharmacies* are under the aegis of the Board of Pharmacy or Board of Public Health. The State Hospital Licensing Act sometimes indicates where the control lies.

2. Hospital *pharmacists* are under the Board of Pharmacy, and

3. Massachusetts until recently had specially printed four-sectioned prescription blanks issued by the Board of Registration in Medicine for hypodermic needles and syringes. These four-sectioned blanks served as prescription, patient permit to possess, and record for the physician and the state. Hospitals in Massachusetts must be prepared to dispense such items legally for their ambulatory diabetic patients.

Further, some states have special statutes relative to standards for clinical thermometers, wood alcohol, articles saleable by pharmacists only, the sale and registering of poisons and kindred subjects.

Legal Responsibilities of the Hospital

Let us now consider the hospital and its legal responsibilities in connection with these standards, laws, and regulations. This is a serious problem today—one being discussed by lawyers concerned with hospital jurisprudence. We must take cognizance of the prevailing rules of evidence in our courts and their effect on the admission into court of standards, laws, regulations, medical records, and manuals. I refer in particular to the rules regarding hearsay, and the *Res Gestae* (the spontaneous declaration or act which grew out of or is part of main fact), and the *Res Ipsa Loquitor* (this thing speaks for itself). Hearsay evidence is, as you know, the statements of a party made outside of court, not by a party to the suit and not under oath. Hearsay, as a general rule, is not admissible as evidence. For example, Mass. G. L. Ch. 233, Sec. 79 reads, "Hospital records of hospitals supported in whole or in part by the public or public contributions are admissible as evidence and are not excluded under the hearsay rule." However, because Massachusetts is one of the states still operating under the charitable trust doctrine, anything touching on the issue of this type of liability cannot be read or introduced. This statute allows only the original record to be admitted and not copies. The same would no doubt hold true for standards, laws, and regulations. One must check the case law (*Stare Decisis* doctrine) and statutes in ones own state to determine the admissibility of these items as evidence.

Procedure Manuals

To these laws, statutes, regulations, and standards, I should now like to introduce one of the contemporary innovations of hospital management

—Procedure Manuals—manuals of operation for the different departments such as for the nursing service, the dietetic service, the pharmacy, etc.

What is the legal status of procedural manuals? In Massachusetts, my home state, such manuals would constitute valid evidence in negligent cases involving other than the doctrine of charitable immunity. The first key as to the direction a court will take hinges on the extent of the charitable immunity doctrine of the state. In certain states with well-relaxed charitable immunity doctrines, such manuals could be introduced as evidence to prove rules of conduct or safety promulgated by the hospital. When such rules are violated and negligence ensues, what better way to show violation of rules than by a recital of the manual's contents on the point at issue, if such evidence can be admitted?

For those of you interested in following this subject further, I cite as authority, the case of Stevens *vs* the Boston Elevated Railroad Co., 184 Mass. 476 (1904). A case in which the plaintiff claimed that the defendant's car coming up from behind, struck the carriage of the plaintiff. It was admitted that neither before nor at the time of the accident did the motorman sound his gong. The plaintiff offered in evidence a *written rule* of the railway ordering motormen to sound the gong before stopping and starting at street intersections and all places where traffic would be expected to cross. The defendant objected on the grounds that the offering of this rule in evidence would be contra to public policy; that if rules of safety designed for the protection of the third person were allowed in as evidence, companies would be reluctant to issue such manuals. However, the court held that company rules *in favor of a third person* could be admitted in evidence as tending to show negligence of defendant's disobedient servant, negligence for which the defendant would be liable.

While Stevens *vs* the Boston Elevated Railroad Co. does not hold too strongly on the public policy rule to preclude this type of an admission, other cases (248 Mass. 559) have held that the leading case of Stevens *vs* the Boston Elevated Railroad Co. is not applicable if the rules are oral. Written rules can be brought into court on a *Subpoena Duces Tecum* and proven.

As an interesting aside, here is another well-established point of law in Massachusetts and certain other states. One cannot introduce evidence showing that repairs were made after an accident to prove negligence (30 Minn. 465). For example, repairs to sterilizers, stills, etc. The reasoning here is one of public policy and an irrelevancy issue. To allow such evidence would, it is said, penalize the careful. Why do such opposite decisions exit? About all that one can surmise is that the courts do not feel as strongly on the *public policy proposition* for written rules as they do for repairs after accidents.

What am I leading to? Simply this. That principles and standards laid down to guide: the laws, their regulations, minimum standards, procedural manuals, and the like become in time, tools to be used in law work in applying *the degree of standard* or *the degree of care, below which,* a hospital might conceivably be found guilty of negligence. Established standards for pharmaceutical services in hospitals, once accepted as standard operations holding to the "reasonable test" in law, give the courts cause to accept such standards in determining what is reasonable to expect *as to the competency of an average pharmacist or pharmaceutical service in a hospital.* Therefore, new and improved standards in nursing, surgery, pharmacy, and other areas throughout the hospital which yield better patient care bring with them recognition of these standards by the courts as a sort of *modus operandi* and are accepted. Failure to meet these minimum requirements might mean taking the possible legal consequences of having evidence submitted tending to substantiate the negligence claim.

One court has already mentioned "written rules" for the conduct of a hospital pharmacy and "standard practice" procedure—the Connecticut Boric Acid-Dextrose case mentioned previously. On appeal, the court stated:

"All of the evidence was to the effect that the pharmacy was set up in accordance with standard practice, and there was no evidence to the contrary. No written rules for its conduct had been prescribed and there was no evidence that standard practice required this or that their existence would have changed the situation."

Furthermore, in litigation, the hospital records may be brought into court by *Subpoena Duces Tecum.* In pharmacy, this could mean the procedural manual, the formulary, prescriptions, and the minutes of the Pharmacy Committee meetings as well as the components of the patient's medical record.

The modern up-to-date hospital should keep live files of pertinent laws, regulations, standards, and procedures. Quite conceivably a hospital not meeting today's standards for its hospital pharmacy might be charged with negligence in operation. Negligence, as here used, refers to the not doing of something that a reasonably prudent man should, or the doing of something that a reasonably prudent man would not do with resulting injuries to another. It is essential then, for responsible hospital officials to review critically, and frequently, the operations of their pharmaceutical services and pharmacy intern programs in the light of the Fed-

eral, State, and local hospital, Public Health, Food and Drug, pharmacy statutes and regulations; the Minimum Standard for Pharmacies in Hospitals of the A.Ph.A. and ASHP; and the accreditation program of the Joint Commission on Accreditation of Hospitals. Procedures should also be checked against procedural manuals. Then, at least an administrator will know his weaknesses and take corrective measures in the interest of better patient care and for protection of the hospital against law suits.

The P.R.N. Order and the Standing Order

The Bureau of Narcotics has indicated, that in its opinion, P.R.N. (*Pro Re Nata* - as the occasion demands) orders for narcotics are permissible under the Narcotic Act, provided they do not exceed 72 hours. However, while this serves as a guide on narcotics from a Federal Code or Regulation viewpoint, the maximum life of a P.R.N. order and the standing order should be a matter of written hospital policy. Some hospitals elect three days, others one week, at which time all P.R.N.'s and standing orders are cancelled or rewritten. U. S. Public Health Service hospitals are directed to handle P.R.N. and standing orders as follows: "All P.R.N. and standing orders for medications expire at 10:00 A.M. on the seventh day unless renewed, or on a specific day each week unless renewed." More and more, the trend appears to be towards the 72 hour life or less for a P.R.N. and standing order in the well-managed hospitals.

Should a specific P.R.N. order or standing order be in question before the court, its proper life would be based on the law of reasonableness based on expert testimony. From our knowledge of tort law and negligence each person (here, the nurse) is generally liable for any acts of his which cause injury to another. We also know that the legal maxim *Que Facit Per Alium, Facit Per Se* (he who does through another, does himself) applies when the individual, in the employ of another and in the normal course of duty, injures a third party. In such cases the employer is liable for the employee's acts. So, in accordance with the master-servant (respondent superior theory) or principal-agent relationship, the hospital is liable for the wrongs of its employees. Here are some examples:

When a physician *improperly* writes a P.R.N. order or a standing order and the hospital-employed nurse follows it, the physician, and nurse, and possibly the hospital, are liable in the event of injury. The nurse has a legal duty to call attention to a P.R.N. order or standing order exceeding the limits of professional reason.

However, when the physician properly writes an order and the hospital nurse improperly carries it out, with injury to the patient, the physician is not liable; the nurse and *possibly* the hospital are. It is interesting to note that the Joint Commission on Accreditation of Hospitals has issued a new requirement in this area—a "stop order" procedure for dangerous drugs. Not to have such a policy means loss in accreditation points or values for the hospital.

The Joint Commission leaves it up to the individual hospital to determine just what drugs as well as the length of time a patient may be on the drugs before a re-evaluation of his case is due. Some hospitals set 48 hours, others 72 hours. At the end of the period (48-72 hours), the drug is automatically stopped. The physician in charge of the case must re-examine the case and re-prescribe the drug if he wishes to continue its use. Drugs most common to this rule are hypnotics, narcotics, anticoagulants, antibiotics, and the dangerous tumor-inhibiting drugs such as Myleran, GT 41, (1-4 dimethanesulfonoxybutane).

Prescription Writing, Signa

Hospital administrators should be aware of the legal responsibility that affixes to the hospital, where an employee-physician, or employee-dentist prescribes a medication with a "Use as directed" signa or with oral directions. Should a patient fail to follow the physician's *oral directions* or misunderstand a "Use as directed" instruction on the prescription label and, as a result, injures himself with the medication, the physician is and the hospital may be held liable. All that is necessary is for the plaintiff to prove that a failure to write a clear signa constitutes negligence. In a Kansas case,[5] a patient was orally instructed to take one teaspoonful of the prescribed drug every four hours. Patient understood the directions to be four teaspoonfuls every hour. The jury awarded $10,000 damages against the physician.

Age on Prescription

Where an overdose is clearly noted on the prescription by reason of age, the hospital, the physician and the pharmacist may be held jointly liable. However, if the age of the patient is left off the prescription, and the patient's age is material, the hospital, if the physician is an employee of the hospital, and the physician may well be liable. (Young's Rule, Bastedo's Rule, Cowling's Rule, and others for dosage.)

Liability of Hospital for Acts of Hospital Pharmacists

Principles similar to those described under the P.R.N. order apply to the hospital pharmacist in

[5] *Medical Economics*, August 1955, page 163.

filling prescriptions, house orders, and other requests. However, note that I qualified the liability of the hospital with a *"may"* be liable. While a master or principal is normally liable for the acts of his agents and servants in the performance of their prescribed duties (but not on "frolics of their own"), this negligence of an employee cannot be charged to the employer in some states unless he he can be charged with a lack of due diligence and care in the selection of the employee or, as in Massachusetts, under no condition can the hospital be held liable under its strict Charitable Trust Immunity Doctrine. The aforementioned Connecticut Boric Acid-Dextrose situation was a case in point.

In the final analysis, determination of the hospital's liability for an act of an employee depends upon the statutes of the state and the decisions of previous cases (known as *Stare Decisis*) in that state on the Charitable Trust Doctrine and the extent of the hospital's immunity.

Elements Necessary to Establish Negligence in Tort Cases

Let us now consider the common law as applied to compounding and dispensing in the hospital pharmacy. In establishing negligence in a tort case, we know that three elements must be proven:

(1) A legal duty to exercise care,
(2) Evidence that this duty has not been exercised, and
(3) An injury resulting from the non-exercise of this duty.

Defenses Against Negligence. When an error and injury are shown, a presumption of negligence exists. The pharmacist to prove non-negligence, may avail himself of one or more of the following defenses:

(1) Prove he used proper care,
(2) Prove contributory negligence (reliance on knowledge and skill of pharmacist is not considered contributory negligence).[6]

[6]Wilcox *vs* Butt's Drug Stores 38 New Mexico 502 (1934).

(3) Prove that the *real or proximate* cause of the injury was not directly due to his negligent act. (Exception to this is in cases of items "inherently dangerous"—see Thomas *vs* Winchester case below.)

Thomas *vs* Winchester, 6 N. Y. 397 (1852), is often quoted as the leading drug case on the liability of an individual to a *third* person when items inherently dangerous are involved. In brief, the placing in motion of a harmful agent, such as the selling of a poison (Tincture of Belladonna) carelessly labeled as a harmless medicine (Extract Taraxacum-Dandelion), places the person respon-

sible for such issuances legally liable to all persons injured through no fault of their own in consequences of the act: (See also leading squid case—Scott *vs* Sheppard, 2 Wm. Blackstone 892.) Such cases are brought into court on tort grounds based on negligence—negligence in the delivering of goods *that are inherently or imminently dangerous.* "One releasing a wild lion or tiger on society is responsible for its acts." This law stems from the belief that the original act of delivering or releasing such an article is wrongful. The hospital is brought into such suits, on the grounds of negligence of its employee—the master-servant doctrine of principal-agent theory carrying over the liability *to* the employer.

Contract Law. The theory of *Caveat Emptor* (let the buyer beware) of the Law of Sales on the contract side, does not apply to the sale of drugs and medications. This legal doctrine is based on the premise that the average person is not skilled or informed on this subject and therefore must rely on the pharmacist vendor to furnish the item called for.[7] The theory of *Caveat Vendor* (let the seller beware) prevails, not *Caveat Emptor* (let the buyer beware) in such a situation. Also, the doctrine of *Res Ipsa Loquitor* (the thing speaks for itself) (see page 280) and *Res Gestae* (a spontaneous declaration simultaneous to the act and therefore a part of it), may be applied, *i.e.*, there is a presumption of negligence if one is injured as a result of overdose or improper filling of prescription or improper manufacturing or bulk compounding.

Elements Necessary to Prove Breach of Contract in Contract Law

When a pharmacist fills a prescription, all the normal rules of contract law apply plus certain implied warranties from the law of sales. The pharmacist impliedly warrants in each prescription that he fills that:

(1) He has the skill of an ordinary pharmacist,

(2) He used due and proper care in filling the prescription,

(3) He used all proper ingredients—did not substitute, and

(4) He used no other ingredients.

A breach of warranty applies only to parties in privity in contract, not to third parties.

Others (third party) reach the pharmacist, as previously stated, through negligence suits on the tort side of law. Parties in privity often times make use of the tort side of law rather than contract in negligence actions although either type of action is available.

[7]Jones *vs* George, 56 Texas 149 (1882), Tombari *vs* Connors, 85 Conn. 231 (1912), Mann-Tankersly Drug Co. *vs* Cheairs & Sons, 75 Ark. 596 (1905).

Insurance

Hospitals normally carry, in addition to others, three types of insurance peculiar to their type of operation: Hospital Professional Liability Insurance; Public Liability Insurance; and Products Liability Insurance. *Hospital Professional Liability Insurance* covers claims of patients against malpractice claims of employees in diagnosis and treatment. This policy usually covers[8] the furnishing or dispensing of drugs to inpatients and to outpatients and also prescription refills. This is a coverage that should be carefully checked by each hospital pharmacist and administrator.

Public Liability Insurance deals with claims arising out of accidents because of plant defects, temporary or permanent, such as falling on steps, etc. This type of insurance is of little concern to us in this discussion. Lastly, *Products Liability Insurance* is a type of protection provided against claims arising from the consumption of products manufactured, sold, handled, or distributed by the hospital for inpatient or outpatient use. This type of policy is of particular value where the hospital operates a coffee shop, tearoom or drug store open to the public. Example: Sale of cold cream to general public. This policy, also, should be carefully checked and made to cover products of the pharmacy department.

Pharmacist's Liability Insurance. At this point it seems proper to mention that all hospital pharmacists should give serious consideration to covering themselves personally with Pharmacist Professional Liability Insurance. The cost is negligible and the protection great. For example, Maryland insurance rates for a $25,000 to $75,000 policy are quoted at $17.10 per annum. One should consult one's own broker or the hospital's insurance broker relative to such a policy in his state.

Compounding Pharmaceuticals Covered by Patent

The Minimum Standard for Pharmacies in Hospitals, quite naturally, advocates the use of U.S.P., N.F., N.N.R., and A.D.R. drugs and preparations. These texts contain, among others, preparations covered by patents and trade marks. The U.S.P. carries this statement:

Notice and Warning. Concerning Patent or Trademark Rights—The inclusion in this Pharmacopeia of any drug in respect to which patent or trade-mark rights may exist shall not be deemed, and is not intended as, a grant of, or authority to exercise, any right or privilege protected by such patent or trade-mark. All such rights and privileges are vested in the patent or trademark owner, and no other person may exercise the same without express permission, authority, or license secured from such patent or trade-mark owner.

The N. F. carries a similar statement.

[8]*Manual on Insurance for Hospitals,* American Hospital Association (1955).

Hospital pharmacists engage both in actual compounding and dispensing activities. In the course of their official duties, hospital pharmacists receive prescriptions or house orders for ointments, creams, lotions, collyria, and other forms of medications. These they may elect to purchase or to compound, depending upon the economies involved.

Should a prescription or order be received for an item in a use form that is covered by a patent right, whether it be in an official compendium or not, the pharmacist cannot legally compound or manufacture the item, unless he or the hospital has obtained a license or permission from the holder of the patent to engaged in the compounding or manufacture of the preparation.

An interesting point in this connection is that patents may be taken out under the Patent Act based on a "new use." Title 35 (Section 100 (b)) provides that "the term 'process' means process, art or method and includes a *new use* of a known process, machine, manufacture, composition of matter or material."

To illustrate our point, THE BULLETIN OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS carried in its October 1951 issue an article on "Chlorophyll, Its Medical and Pharmaceutical Applications." In January 1952, the holders of the patent rights[9] covering the therapeutic use of water-soluble chlorophyll had this to say in an open letter to the editor, which was published in the same publication:

> We feel that this article has created a situation which can damage our company considerably and can conceivably cause hospital pharmacists and others to think they can manufacture these chlorophyll preparations without violating our patents.

Incidentally, this manufacturer brought suit against another drug company in the Texas Federal Court (Northern District) charging infringement of patent by producing ointments, solutions, and tablets of chlorophyll. It was awarded $6,727 in damages with the defendant becoming a licensee of the patent holder.

Not to belabor the point further, but to indicate the feeling of Veterans Administration on this subject—in April 1952, a release to VA installations, signed by the Chief Medical Officer, restricted all pharmaceutical services of the Veterans Administration from engaging in the manufacture of "patent pharmaceutical preparations."

Prescriptions

Prescriptions—Privileged Communications. As we well know, certain information contained in medical records is privileged, that is, having been obtained as a result of a confidential relationship between the parties; the recipient of such information cannot be legally compelled to disclose this information. Prescriptions *may* also belong in this classification. This is a matter for the hospital's attorney to decide, based upon the facts in the case, the prescription itself, and the law of the state; some states (New York and Mississippi) have indicated that physician's prescriptions are not considered "privileged" after they have been submitted to the pharmacist.[10] A *Subpoena Duces Tecum* is used to produce the prescription in court. Destruction[11] of a prescription may be used as evidence admitting guilt. Therefore, all prescriptions should be preserved the full period of the Statute of Limitations of the state. Further, under the "best evidence rule," the highest degree of proof should be available, in this instance, the original written prescription (see below for legal requirements of holding).

Ownership of the Prescription. State and Federal codes and statutes must be applied in this instance. However, in general, it may be said that the prescription is the property of the patient until filled—then, because it falls under the best evidence rule and for other reasons, it belongs to the pharmacy or hospital.

By statutes and codes today, many prescriptions are not refillable and the pharmacist or hospital must account for stocks of such items. Narcotics, hypnotics, and "Prescription Legend" drugs are in this category. Obviously, the filling of such prescriptions implies as part of the contract the keeping of the prescriptions by the pharmacy.

Length of Time to Hold Filled Prescriptions:

Narcotic prescriptions—Harrison Narcotic Act —2 years.

Prescription legend drug prescriptions—Federal Food, Drug, and Cosmetic Act—3 years.

Ethyl alcohol records—5 years.

All prescriptions—X number of years—the number of years depending upon pharmacy laws and the Statute of Limitations in your state.[12]

[9]United States Patent Office, 2,120,667.

[10]133 NYS 2d 27 in re: Niver's Will, also 84 NYS 887, and 66M, 588.

[11]Marigny vs DeJoie La. 1937 172 SO 808.

[12]Federal - A tort claim against the United States shall be forever barred unless action is begun within two (2) years after such claim accrues. (Chapter 92, Public Law 55 - 81st Congress-1949 - 28 U.S.C.A. 2401 (b)).

2. CODES AND STATUTES, FEDERAL AND STATE

Now, let me discuss a variety of other legal activities that are important to the properly functioning hospital pharmacy.

Mailing Prescriptions and Narcotics

Transmitting poisons, explosives, and inflammable materials through the mail is prohibited except in such instances as the Postmaster General stipulates, and where such mailing is according to rules and regulations prescribed by him (18 U.S.C.A. 340).

Excess and undesired narcotics in the possession of a registrant may be disposed of by shipment, charges prepaid (shipments by mail shall not be made), to the Narcotic District Supervisor of the District (Article 196).

Federal Marihuana or Cannabis Act

This Act was passed in 1937 to control traffic in Hashish (Marihuana or Cannabis). The only use for Cannabis in medicine, to my knowledge, is as a coloring agent in corn collodion. There is no valid use for the botanical and I doubt if any hospital is concerned with this tax licensing law. Those seeking further details are referred to Regulation No. 1 of the Marihuana Act as issued by the Bureau of Narcotics of the Treasury Department.

Fire and Safety Laws

No discussion on the subject of laws and statutes pertaining to pharmacy would be complete without at least a mention of this subject. Local fire and safety laws should be investigated by the hospital and full compliance made with local regulations. In hospital pharmacy, this encompasses the storage of alcohol, isopropyl alcohol, ether, chloroform, and other inflammables.

Fire regulations require fire extinguishers for such places as the pharmacy and laboratory. Because such areas are usually confined, the carbon tetrachloride type extinguisher is condemned. A number of deaths have resulted, as you know, from its improper use in closed areas. A fire blanket or fire shower should also be provided in these areas, not only as good safety measures, but to prevent charges of negligence by management in case of accidents and injuries to employees and others.

The Substitution and Duplication Problem

Those of you who are hospital administrators are concerned with drug inventories and turnover of stock. Many hospital administrators seek a stock turnover of five to six annually from their pharmacies. This is sound inventory control. Also, we all know that a drug may exist by several trade names. Take aspirin, for example. Two of its trade names are "Empirin" and "A.S.A." Isoniazid, the antitubercular drug, is probably the most bizarre example with some 15 to 20 trade named items[13] on the market in its earlier years. The availability of many brands of the same drug is known in the drug industry as the "duplication problem." "Substitution" is defined as the dispensing of another item than the one called for.[14] By common usage of late, substitution is thought of as dispensing other than the brand prescribed. This, of course, is a violation of ethics and is illegal. The addition of several brands of the same drug to the inventory of the hospital pharmacy does not necessarily increase the benefits to the patients, but does increase inventory value with a decrease in turnover of stock.

Should a hospital stock all brands, one, or a few? Fortunately, there is a simple answer to this: Let the medical and dental staff itself elect which drugs they want through the hospital's Pharmacy Committee. The use of the hospital is a privilege, not a right. Physicians and dentists agree to abide by the rules and regulations of the hospital, including those made by the Pharmacy Committee and ratified by the staff. The Committee may suggest, and the staff agree, that drugs be listed by their official and generic names, at least in those instances where there is more than one producer or vendor of the same drug. Then, charge the best qualified person in the hospital, the pharmacist, with responsibility for selecting the brand to be stocked. The pharmacist, if conscientious, and most are, will choose a reputable firm, one engaged in research and quality control. Many drug items are competitive. Economy in administration demands that the hospital obtain bids or check prices of several of the reputable houses. Referring to drugs by their generic and official names facilitates this operation considerably and serves as a most valuable teaching tool to the intern-physician, intern-dentist, intern-pharmacist, and student nurse. Further, it provides some semblance of standard drug nomenclature for medical records. The policy of the Division of Hospitals, Public Health Service, on

[13]Cortinazin (Pfizer), Niconyl (Parke, Davis), Dinacrin (Winthrop), Nydrazid (Squibb), Tynid (Merrill), Ditubin (Schering), Pyrizidin (Nepera), and others.

[14]National Pharmaceutical Council defines substitution as "the dispensing of a different drug or brand in place of the drug or brand of drug ordered or prescribed without the expressed permission of the prescribing physician." (1955)

the labeling of nursing station medication containers is a good example of sound labeling of drugs for use within the hospital:

(1) Drugs shall be labeled with their generic name (not trade or chemical name).

(2) In instances where the drug is available from one manufacturer only—the trade name may appear in parentheses directly beneath the generic name.

(3) Where the staff elects to use a product of one manufacturer exclusively, the trade name may follow the generic name as indicated in (2) above.

(4) Strengths and dosage shall be noted in the metric system (not English or Apothecary).

A leading university hospital handles this problem as follows:

"No drug sold under a proprietary name will be admitted under such a name if a substance of identical composition can be obtained under a nonproprietary name. Prescriptions calling for trade name drugs will be filled with the basic drug, but not necessarily with the brand called for under the registered name."

This rule was proposed by the Pharmacy and Therapeutics Committee and *approved by the Medical Advisory Staff of the hospital* and is in the preface of the formulary where it may be readily read by *all members* of the medical staff.

In the rare instance where a staff, through its Pharmacy Committee, elects one brand, among several, that brand must be furnished. Otherwise, the hospital could be charged with "substitution," *i.e.,* the giving of one brand when another is prescribed, with the possibility of the pharmacist losing his privilege to practice and registration or having it suspended and/or being fined, and the good name of the hospital suffering seriously. If for no other reason than in the interest of good public relations, "substitution" must be a taboo practice in our hospitals.

Containers of nursing station medications should be watched for careless brand labeling. For example, to be specific, should a nursing station container read "Nembutal" and contain any manufacturer's pentobarbital but Abbott's, that hospital is guilty of "substitution." Again, should a label call for "Seconal," only secobarbital of Lilly's may be placed in the container. Further, the use of colored capsules distinctive of a particular firm's product for encapsulating medications is evidence of intent to "substitute."

It is easy to understand the wrath of a manufacturer in this substitution problem. He spends money and time developing physician acceptance to a trade name. When physicians write for the drug by the trade name, the patient must receive the brand prescribed. When a physician prescribes by brand name, he does so because he, consciously or unconsciously, is convinced of a desirable quality of the product. He prefers to elect and designate the manufacturer of the drug he is prescribing, rather than to leave this to the judgment of another. This election is the physician's right, one we must acknowledge and respect.

Francke, in an editorial[15] entitled "Substitution and the Formulary System," points out quite clearly that in hospitals operating under a formulary system, the pharmacy (and therefore the hospital) has received authority from the staff to dispense any brand of a basic drug regardless of the brand prescribed. Francke points out that there is no element of intent to deceive the physician where the basic house rules of the hospital clearly state this as policy. Francke further points out that the formulary system is not substitution for the same reason that product duplication is not product imitation—the element of deceit being lacking.

It is pointed out that where the formulary system is in effect and the basic drug rule adopted, the *labeling* of medications by trade name, of brand name not stocked, is unethical and unmoral, the intent not to deceive can be argued as being absent, the rule being used as a shield of protection only. The test in any given situation is to apply the law of reasonableness to the facts.

To indicate the seriousness of brand substitution, some states have passed statutes making such substitution illegal. In New Jersey, such a statute is so strongly worded that where a physician prescribes for an enteric coated tablet by the word "Enseals," only a Lilly brand enteric coated tablet may be dispensed.

In Massachusetts recently, I am informed, six pharmacists were placed on probation for one year by the Massachusetts Board of Pharmacy for substitution. In Massachusetts, the Board of Pharmacy moves against substitution through its power to suspend or revoke a pharmacist's license on the grounds that substitution constitutes "deceit, malpractice, and gross misconduct."

Substitution in filling prescriptions is also forbidden in a bill introduced (January 1955) in the Indiana Legislature to revise the pharmacy laws of the state. The proposed statute permits substitution of a nonprescription legend drug if the patient authorizes it. The prescribing physician must authorize the substitution on a "legend drug." (See Food and Drug Laws for discussion on "Legend Drugs.")

[15] *Bull. Am. Soc. Hosp. Pharm. 13*:23 (Jan.-Feb.) 1956.

Dr. Charles Letourneau, Editor of *Hospital Management* and a noted authority on hospital administration and jurisprudence, appears to take a somewhat different viewpoint as to what constitutes "consent" of a physician on a hospital staff where a Pharmacy Committee and formulary operate. In the May 1956 issue of *Hospital Management,* Dr. Letourneau states in answer to the question:

We are a large hospital operated by a State Government. We have a well organized pharmacy and therapeutics committee. This committee standardizes all the drugs that are kept in the pharmacy and authorizes the hospital pharmacist to substitute a generic name drug for a brand name drug. Recently, some of our physicians have complained that this substitution is unwarranted and have insisted upon the brand name drug. Our medical staff by-laws empower the pharmacy committee to standardize the drugs. When the physician signs the medical staff by-laws, does he not bind himself to respect the decisions of the pharmacy committee?

ANSWER: Regardless of the authority which you have conferred upon your pharmacy committee, your pharmacist may not substitute a generic name drug for a brand name drug. If he chooses to do so, he may refuse to fill the prescription and refer the physician to the pharmacy committee. Under no circumstances may he substitute his own choice of drug even if this is authorized by the pharmacy committee. It is an axiom of the practice of medicine that when a physician prescribes a drug for his patient, there is no room for any doubt on his part that the patient actually received the drug that he prescribed. In my opinion, the hospital is at fault and should discontinue this practice of substitution of drugs.

Medical Staff Control Not Substitution

It is my personal conviction that the use of a formulary system, entirely controlled and operated by a medical staff, with stated rules including one that permits the use of Pharmacy Committee approved drugs whenever trade name drugs are prescribed, is not in violation of any substitution or other pharmacy laws or regulations. I base my decision on the following:

(1) The definition of substitution as used by the National Pharmaceutical Council: "Substitution is the dispensing of a different drug or brand of drug in the place of the drug or brand of drug ordered or prescribed *without the expressed permission of the prescribing physician*" (1955).

(2) The use of a particular hospital by a physician *is one of privilege, not of right,* a privilege that may be granted, refused, or revoked by the hospital authorities. A condition implied in accepting the granted privilege is to abide by the rules and regulations of the hospital.

(3) Pharmacy Committee rules and regulations are part and parcel of the hospital rules and regulations. Since the physician himself has agreed to abide by these rules and regulations as evidenced by his use of the facilities of the hospital, he quite obviously *has given his expressed permission to use the brand currently stocked* in the filling of his house order or prescription and hence, the practice of substitution is not involved. As Francke states, there is no intention to deceive on the part of the hospital.

(4) *One reasonable exception* which could apply, in my opinion, is where the physician *clearly indicates* that he wants a particular brand of a drug and no other for a particular patient, then it would be the clear duty of the hospital to furnish that drug or consult with the physician. This would necessitate, in a well-regulated hospital with a staff-controlled hospital formulary and Pharmacy Committee system, an emergency purchase of that brand for the particular patient from a local pharmacy or wholesaler. Such instances would no doubt be rare, inasmuch as the Pharmacy Committee (a committee if properly constituted, made up of senior staff members) would post-audit these requests and if the pharmacology involved warranted, the item would be added to the formulary.

Formulary Flexible

In this entire subject, one must be mindful of the fact that a formulary is *not* a fixed list as so many critics of the system state, but rather it is a dynamic list, being reviewed constantly by those on the medical staff best qualified to evaluate the best of therapeutic agents available. Additions and deletions to the "formulary" or "drug list" are continuously being made, as the Pharmacy Committee evaluates the drug therapy requests of the individual staff members.

I suspect that this problem will never be solved to the satisfaction of all until (1) generic names become as brief and as easy to pronounce as trade names. There appears to be a trend in this direction; for example, promazine (Sparine), chlorpromazine (Thorazine). (2) Generic and official names are used in the writing of prescriptions and patient chart medication orders. It is in this latter area that an educational program is badly needed. Once under way, it would be readily adopted by the nursing schools. Pharmacy schools, by and large, are now doing an excellent job in teaching generic and official names along with the trade names involved. (3) Manufacturers appear to employ some sort of control among themselves on duplication of products.

The safest approach for the protection of the pharmacist and the hospital, until this matter is resolved by a test case, is one where at the time the physician signs the medical staff by-laws of

the hospital, he be asked to sign a separate form authorizing the pharmacy to dispense the basic drug in any instance he prescribes by brand name unless he specifically indicates by other than the writing of the trade name, that he desires that particular brand. For example, it would be quite proper for the hospital to print on its prescription blanks and patient charts a statement indicating that "generic equivalents may be used, where a brand name is specified unless otherwise requested."

A final point on this issue—one must check the particular state, county, and city laws and regulations on this subject to insure full compliance with the law of the area. This is true of all matters discussed in this paper. Obviously, in any specific situation involving possible litigation, one should consult an attorney trained in the law of the area for competent advice and counsel. This paper attempts only to point out the legal implications involving the hospital pharmacist in the performance of his duties.

Fair Trade Laws

Many states have "Fair Trade Laws," laws designed to protect the goodwill established by a manufacturer in his trade-mark, brand, and named items by the establishment of minimum prices at which such items may be sold. A recent case (May 1954), Hoffmann-La Roche *vs* Schwegmann tried in the U. S. Court for the Eastern District of Louisiana, [16] indicated[17] that the goodwill established in prescription items is inseparably bound with prescriptions which physicians write for their patients. This case went up on appeal.[18] In the spring of 1955, the 5th Circuit in New Orleans of the U. S. Circuit Court of Appeals affirmed the lower court's decision.

Where a hospital serves as a purchasing agent for its employees, a practice frowned upon by many community business men and sometimes illegal under charter limitations, the hospital, like any other vendor, must fair-trade (*i.e.,* comply with minimum resale price) the items so listed in the state or be subject to the penalties provided by the state statutes.

Recently in one of the New England states, the Board of Pharmacy called in several hospital pharmacists for violating its Fair Trade laws in outpatient prescription dispensing. It is my opinion that in a test case it would be held that hospitals must either give the drug away or sell the item at its fair trade price or be subject to the stated penalties of the law of that state. It will be noted here that fair trade laws aid the enforcement of a civil contract. Some dicta or opinion of Attorneys General indicate that in some states violation of fair trade cannot be grounds for suspension of license on grounds of moral turpitude. In other states the matter is not decided.

Many believe that the selling of medication below the usual retail price to employees and to former patients of the hospital is unethical. The hospital gains tax-exemptions and purchases drugs at a low cost because it is a charitable institution supported in full or in part by tax funds. For such an institution to compete unfairly by price differential with private business is unmoral and unethical.

Federal Caustic Poison Act (1927)

This Act is normally of no concern to hospitals. In brief, the law requires special labeling of certain poisonous chemicals and their preparations moving in interstate commerce. Failure to comply with the law involves misbranding. Items such as hydrochloric acid, sulfuric acid, nitric acid, carbolic acid, oxalic acid, acetic acid, hypochlorous acid, potassium hydroxide, sodium hydroxide, silver nitrate, and ammonium hydroxide in strengths of over 5, 10, or 20 percent, depending upon the particular caustic poison, are covered by the Act. For details see U.S.C.A. Title 15 - Commerce and Trade.

Federal Insecticide Act (1910)

This is an Act designed to prevent interstate

[16] McGuire Act and Louisiana Fair Trade Act involved. McGuire Act (Federal)—unfair methods of competition unlawful. This amendment states in effect that it is not unlawful to enter into contracts or agreements prescribing minimum or stipulated prices, for the resale of a commodity which bears, or the label or container of which bears, the trade-mark, brand, or name of the producer or distributor of such commodity and which is in free and open competition with commodities of the same general class, providing such contracts are lawful as applied to intrastate transactions of the state in which resale is to be made. Amendment further states that it is not unlawful (under anti-trust laws and unfair competition laws) to exercise or enforce any right of action accruing by state law which in substance provides that willfully and knowingly advertising, offering for sale, or selling any commodity at less than the price or prices prescribed in such contracts or agreements, whether the person so doing is or is not a party to such a contract, is unfair competition and actionable at the suit of a damaged party.

[17] FDC Drug Letter 7/18/55—"16 states whose supreme courts have upheld the validity of F.T. (Asterisk indicates 6 states where high courts have upheld or reaffirmed F.T. since enactment of the McGuire Act—Cal.*, Conn., Del.*, Ill., La., Md., Miss., N.J.*, N. Car., Ore., Pa.*, S. Dak.*, Tenn., Wash., and Wisc.*, N.Y.*.

[18] The Court of Appeals held that a customer's awareness of the name of the drug in a prescription is *not* an essential factor in determining whether the trade name or goodwill of the manufacturer is used; as long as the prescription designates the drug by the manufacturer name or trade-mark, the Fair Trade Laws are applicable.

commerce of insecticides adulterated or misbranded according to the statute. Law applies to all insecticides, Paris Green, lead arsenates, fungicides, etc. Normally this Act is of no particular interest to the hospital, except like the caustic poison act, such information is valuable concerning shipments of such supplies to the hospital.

Federal Income Tax Law (Revised 1954)

Because hospitals are concerned with the impact of this Act upon their operations and because of the inquiries received from patients, mention is made of the fact that medical, dental expenses, etc., are deductible (see code for special provisions for those 65 and over maximum deductions, blindness, etc.) to the extent that such expenses *exceed* three percent of the adjusted gross income and are *not* compensated by insurance or otherwise. Items such as dentrifices, mouth washes, and similar household medications, are not considered as legitimate deductions in this category. However, amounts paid for medicines and drugs which would be taken into account in computing the deduction under medical dental expense allowances, shall be taken into account only to the extent that the aggregate of such amounts *exceeds* one percent of the adjusted gross income (see Internal Revenue Code - Part VII - Section 213 (a) (b) and (c)). Patients sometimes desire or demand itemized receipts for payments made to the hospital or clinic for these items to satisfy income tax proof requirements.

III. CODES AND STATUTES

Federal Food and Drug Laws

This item receives considerable space in the drug journals today because of the recent changes under the Durham-Humphrey Law. The Durham-Humphrey law was brought about to *distinguish clearly* what drug items could be sold over-the-counter and those items that can be dispensed on prescriptions only.

The Food and Drug Laws date back to 1906. As far as our interest in hospital pharmacy is concerned with this law, we can highlight it as follows:

(1) Drugs can either be sold over-the-counter or on prescription. How do we distinguish? If it bears a prescription legend "Caution—Federal Law prohibits dispensing without prescription," the drug cannot be sold over-the-counter; it may only be sold on a prescription. Drugs in this latter group are termed "Legend Drugs."

(2) Prescriptions for prescription legend drugs cannot be refilled unless authorized by the physician or dentist.

(3) Prescriptions for "Prescription Legend Drugs" must contain on the label (a) the name of the prescriber, (b) the serial number, and date of filling, (c) name of patient, if on prescription, (d) any directions or warnings given in prescription (signa), (e) name and address of store or hospital.

(4) Oral prescriptions from physicians and dentists for such items should be put in writing by the pharmacist and filed. The pharmacist must record (a) date and serial number, (b) names of physician and patient, (c) items and quantities prescribed, (d) directions and cautions, if any, (e) refill directions, if any.

(5) Physician's oral refill authorization[19] should be written down on the original prescription. (While the act may not specifically require the exact procedure for (4) and (5), the adoption of such procedures meets the requirements of the law in full.)

Most hospitals now insist that their outpatients be seen by the physician on each visit, and that a new prescription be issued in each instance. Therefore, the refill violation problem is of little concern to most hospitals. However, I mention this law because its violation is a serious one in pharmacy.

Today's dangerous drugs, such as phenobarbital, amphetamine, pentobarbital, and others, if sold over-the-counter, *i.e.*, without a prescription, bring to the pharmacist-seller large fines, jail sentences, and loss or suspension of registration. This is causing those in hospital pharmacy to look with concern to their drug controls in the pharmacy and at nursing stations. Hospital pharmacists must be particularly alert to see that no prescription legend drugs are sold by the hospital to employees without a prescription, otherwise the hospital violates this Federal law. The majority of professional people are trustworthy, but because of the few who are not, one must be alert for diversion of stocks from the pharmacy and nursing medication stations. One death from phenobarbital obtained from a hospital as the illegal drug source would be bad publicity, to say nothing of the problems involved in an investigation by Food and Drug officials.

[19]The recently passed Durham-Humphrey Law provision of the Food and Drug Act allowing for oral refills has been held unenforceable by a Chicago Federal Court. In a Federal case in which unauthorized refilling was charged, the court held that it is impossible to prove beyond a reasonable doubt that the pharmacist did not obtain oral authorization to refill when he testified that he did. The case will no doubt be appealed.

Investigational Drugs

A word about new or investigational drugs. These are drugs that are not yet available in interstate commerce. Section 201 (p) of the Food and Drug Act defines a "new" drug. Before a manufacturer may release a new drug, it is submitted to the New Drug Section of the Food and Drug Administration, with "full reports of all investigations made to show whether or not such drug is safe for use."

New drugs before release in interstate commerce, and while in clinical trial, are labeled, "Caution—New Drug—limited by Federal Law to investigational use." Such drugs may be *used only by experts qualified by scientific training and experience to investigate the safety of drugs.* Obviously, this work must be done by individuals with qualifications in excess of those ordinarily possessed by practicing physicians and dentists. Such individuals must be experts on the safety of drugs. Again, I presume that the law of reasonableness is applied to determine whether a certain physician is an "expert" under this statute. In other words, would a reasonable and prudent man, after viewing the formal training and/or experience of the particular physician, consider that he is an expert on the safety of the particular class of drugs under study?

Approval or rejection of a new drug application must be made within sixty days of application. If negative action has not been taken within the sixty day period, the application becomes effective. This section of the law was not in existence at the time of the sulfanilamide elixir incident that resulted in the death of over 100 persons. The best advice that I can offer concerning the use of investigational drugs is to check with Federal Food and Drug authorities, the U. S. Public Health Service, and other sources such as the American Medical Association's Committee on Research, formerly the Therapeutic Trials Committee, for advice concerning side effects and contraindications of the drug before it is used. The Food and Drug authorities, it should be remembered, maintain constant surveillance over a drug after its release. This is done to determine whether or not the initial judgment remains applicable. Should new uses or unforeseen side effects or contraindications appear, the drug is re-evaluated. An excellent case in point is the chloramphenicol incident.

The Therapeutic Trials Committee of the

Council on Pharmacy and Chemistry of the American Medical Association (now called the Research Committee) is an excellent authority and source of information on recognized procedures for the clinical testing of investigational drugs. One of the objectives of this Committee is to bring together the manufacturer of the new drug and expert investigators who have proper facilities.

Some excellent guide lines in connection with clinical investigations were developed as a result of Dr. Ivy's work at the Nuremberg trials in Germany. I cannot give proper credit to the group developing these points but it is my impression that credit belongs to the Research Committee of the American Medical Association. For example, it is suggested that prior to clinical trial, three points be observed: (1) That voluntary written consent be had from the *fully informed* patient; (2) That the danger of each experiment is previously investigated by animal experimentation; and (3) That proper medical protection and management be available.

Many hospitals, as an additional precautionary measure, prohibit the administration of investigational drugs[20] until such time as adequate information concerning the action, uses, dosage, toxicity, and precautions are available at the nursing unit in a form approved by the Pharmacy Committee.

At least, such evidence of prior investigation and precautions should go far to assure lack of negligence, should injury result to a patient.[21]

Labeling of Medication Containers

The only exception allowed by the Federal law to the strict label requirements for drugs, applies to items dispensed on prescriptions. *In the opinion of the writer,* all nursing station medication containers carrying drugs involved in interstate commerce or whose ingredients have crossed state lines must be labeled in compliance with the Federal Food and Drug Law, otherwise the hospital could be charged technically with "misbranding." Original manufacturers' packages placed on the floors create no legal problems; however, this is not considered good pharmacy practice if the volume is large.

Labels of nursing station medication containers prepared by the pharmacy service of the hospital are probably in technical violation of the law unless they carry a strip label, "Caution—Federal law prohibits dispensing without prescriptions." From a practical point of view, considering that such nursing station items are controlled by physicians, pharmacists and nurses within the hospital and maximum security and vigilance are maintained over their proper use, little concern need be given to this technicality providing the drug is properly identified in its container and is administered only on the order of a physician. Possibly some day, another exception will be made in the law, one that will authorize the commonly used and needed type of medication label for containers placed on nursing units. Obviously, time, personnel and printing equipment prohibit the use of the seven-point, lengthy, legal label. According to Federal law the label should bear the following seven items: (1) name of product, (2) name and amount of habit-forming drugs, (3) statement "warning, may be habit-forming," (4) statement of ingredients (two exceptions, where product is official and carries official name or ingredients not active medicinally), (5) statement of indications for use, (6) warning statement, and (7) name and address of maker or vendor and net contents. And obviously too, the various size trade packages with trade labels cannot go to the nursing stations in most instances because economics in quantity buying, so important to well run hospitals, would be lost. For example, aspirin packaged 5,000 or more to a contained would be too large a quantity to distribute to a nursing station.

IV. CODES AND STATUTES (U.S. TREASURY DEPARTMENT —ALCOHOL-STILLS)

Federal Laws and Regulations Pertaining to Ethyl Alcohol

Federal laws and regulations concerning industrial alcohol are found in Part 182, 1954 Code of Federal Regulations. This part covers the area of control on alcohol from manufacture to use. Those interested in obtaining a copy of the regulations should write to the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D.C. (Specify Federal Register of December 31, 1954, Part II, Section I, Volume 19, Number 253. Price $0.45 per copy.)

Hospital administrators and pharmacists are especially interested in the regulations because of Section 3108 (c) Section 5310(c) 1954 Code which allows the use of ethyl alcohol, by hospitals

[20]The term "experimental" drug is not considered good usage today because of its connotation to the patient.

[21]The Gallinger Act of the District of Columbia and the New York City Code state that human experiments are prohibited except for the benefit of the particular patient (see statutes of your city and state for details of requirements that must be met to obtain approval).

and nonprofit clinics, tax-free. This permits a savings of $15 to $20 per wine gallon, a $9.50 refund per proof gallon in alcohol tax drawback.[22]

Some small hospitals ignore this tax saving feature of the Internal Revenue Code and purchase tax-paid alcohol in order to be relieved of the inconvenience incurred in complying with regulations under this exemption. Some hospitals use tax-paid alcohol and claim drawback privileges where the alcohol is used in compounding medicinal preparations (including prescriptions), food products, and flavors and flavoring extracts which are unfit for beverage purposes. The use of such products is not restricted to the premises of the hospital. In the latter instance, some savings are realized but not to the extent possible if tax-free alcohol is used. However, the use of medicinal products *prepared* with tax-free alcohol *must be confined strictly to the hospital premises,* except as specifically provided by Section 182.661, Part 182. Those interested in exploring further the use of alcohol, subject to drawback, are referred to Regulations 29[23] and pertinent recodifications of the Act.[24]

Section 3108 (c) of the Internal Revenue Code of 1939 (Section 5310 (c) Internal Revenue Code of 1954) provides in part, that hospitals, sanitariums, and clinics, *operated for charity and not for profit,* may obtain tax-free alcohol for use in the hospital, sanitarium, or clinic, including use in the compounding of bona-fide medicines for treatment outside of such clinics of patients thereof, *but such medicines may not be sold.* That is one of the reasons why some hospitals and nonprofit clinics carry both tax-free and tax-paid alcohol.

Note the clause, *but such medicines may not be sold,* for two reasons: *First,* when a hospital operates an outpatient department, and *charges* for prescriptions containing alcohol dispensed to outpatients, it cannot use tax-free alcohol. In such instances, the hospital has three alternatives: (1) use tax-paid alcohol and request a tax rebate where authorized under Section 5131, Internal Revenue Code; (2) use tax-paid alcohol and absorb the tax; or (3) purchase processed pharmaceuticals for outpatient department use and refrain from using hospital-made pharmaceuticals containing tax-free alcohol. Normally but four items containing alcohol are used in any volume in the outpatient department: Tincture of Belladonna, Elixir of Phenobarbital, Elixir of Terpin Hydrate, and Elixir of Terpin Hydrate and Codeine.

The second reason—two years ago the American Hospital Association's Administrators Guide number of *Hospitals* indicated that in 18.6 percent of the nation's general hospitals, physicians maintained offices from which they conducted their private practice. Here I quote the *Journal* of the National Association of Retail Druggists 1954, 76 No. 13.8 "that certain physicians who have offices in hospitals refer prescriptions they write for their private practice patients to the hospital pharmacy where they are filled. The hospital pharmacy that uses tax-free alcohol in compounding these prescriptions is in direct violation of the provision of Section 3108(c) of the Internal Revenue Code and Regulations issued thereunder." Hospitals and clinics using tax-free alcohol for unauthorized purposes are also liable for the payment thereon of an amount equal to the tax in accordance with the terms of the tax-free permit.

Another point, tax-free alcohol must *not* be used in the preparation of condiments, culinary extracts, flavoring, or other preparation used in food products, or in food products in any manner, and under no circumstances shall such alcohol be used for beverage purposes or in any product which may be so used. Thus the use of *tax-free* alcohol in the making of vanilla, lemon, maple, or similar flavoring extracts for the dietetic department—a service rendered by some hospital pharmacist—is not allowed by law.

[22]Tax is $10.50 per proof gallon or $1,077.30 per 54 gallon drum of 95 percent alcohol. (Proof is double the percent, *i.e.*, 95 percent is 190 proof.) $10.50 - $9.50=$1.00 per gallon tax with drawback. Records must be kept for five years.

[23]Section 5131, *et seq.* Internal Revenue Code of 1954. In general, any person using distilled spirits, produced in Domestic Registered distillery or industrial alcohol plant and full tax-paid, in the manufacture or production of medicines, medicinal preparations, food products, flavors, or flavoring extracts which are unfit for beverage purposes, upon payment of a special tax per annum, shall be eligible for drawback at the time when such distilled spirits are used in the manufacture of such products and as hereinafter provided for.

Note: (1) Special tax. For total annual withdrawals not exceeding 25 proof gallons, $25.00 per annum; not exceeding 50 proof gallons, $50.00; over 50 proof gallons, $100.00.

(2) No claim will be allowed unless filed with the Secretary within three (3) months next succeeding the quarter in which the distilled spirits covered by the claim were used as provided by law. Claims must be made on Form 843. Individuals filing claims for drawback must execute a bond on Form 1730, as required by law, if claim is filed on a monthly basis.

[24]Drawback at the rate specified by law ($9.50 on each proof gallon upon which tax is paid at the rate of $10.50 per proof gallon after November 1, 1951). (For this and other drawback rates, see Section 5134, 1954 Internal Revenue Code.)

I shall not go into great detail about the forms that must be filed and records that must be kept in connection with tax-free alcohol. There are not too many: (1) Form 1450, the Application for Permit to Procure Alcohol Tax-Free and the Withdrawal Permit; (2) Form 1451, Record of Tax-Free Alcohol Received and Used; (3) Form 1448, Tax-Free Alcohol User's Bonds; and (4) Form 1447, Application and Basic Permit to Use Alcohol Free of Tax.

Please note that Form 1447—the Application and Basic Permit Form—requires a statement as to the *purposes* for which the alcohol will be used. These must be indicated in detail and not in general terms. For example, "clinical use, treatment of patients, compounding medicines for use of patients in the hospital, preserving specimens of anatomy, etc." As new uses occur in the hospital, it is advisable to amend the use clause.

Other items of interest in connection with the Tax-Free Alcohol Code are:

1. Permits are renewed annually prior to January 1 by filing Forms 1447, Permit to Use, and 1450, Permit to Procure.

2. The hospital's annual requirement in *proof gallons,* not wine gallons, must be estimated together with the maximum number of proof gallons on hand, in transit and unaccounted for at any one time (with certain regulatory exceptions, this latter cannot be over 1/12 of the annual usage).

3. A complete description of the alcohol storeroom or compartment with its size must be filed.

4. Inspections by a member of the Alcohol and Tobacco Tax Division may be expected from time to time.

5. As many as five possible vendors may be specified.

6. The hospital is responsible for checking with state and local authorities as to local requirements, if any.

7. Certified copies of Form 1450 (Withdrawal Permit) from the Assistant Regional Commissioner must be filed with delivering carrier's agent (usually done by letter at time of filing 1450).

8. In procuring alcohol, the hospital must deduct the quantity of alcohol on hand, in transit and unaccounted for, from the quantity procurable under the withholding permit during the calendar month and give an order for an amount not to exceed the available balance. Failure to observe this requirement will be regarded as sufficient ground for citation of revocation of the basic permit.

9. Obviously, the storage area for alcohol must be fire and theft proof. Formerly, ethyl alcohol had to be stored in a separate area. However, a recent amendment to regulations now allows storage of other items in the same area *providing there is no co-mingling of stock.* This is a sensible change, for fire and security areas are costly. Explosion proof switches, covered electrical light outlets, exhaust fans, drains, window security grills, raised door sills, water sprinkler systems and even blow-out walls are sometimes required. With the new amendment, and by rough partitioning, ethyl alcohol stocks may be separated in this area and other inflammables now stored in the same vault.

10. The storage space must be "a locked storeroom or compartment in accordance with Section 182.61 of the Code.[25] Such alcohol shall remain in the original packages in the storeroom or compartment until withdrawn for use."

11. The copy of 1440 (Report of Gauge) received by the consignee from the storekeeper gauger (one copy to Assistant Regional Commissioner upon shipment and one remains with warehouse) at the shipping industrial alcohol plant or bonded warehouse shall be filed available for inspection by government officers. Receipt of alcohol and issues are recorded on Form 1451 (Report of Tax-Free Alcohol) covering transactions for each month. This report is forwarded to the Assistant Regional Commissioner, Alcohol and Tax Unit, not later than the tenth day of the following month; a carbon is kept available for inspectors.

12. Form 1451, mentioned above, the monthly report form indicates the amount used so far during the calendar year.

13. The permit to use alcohol, tax-free, should be posted in a conspicious place.

14. The monthly report—Form 1451—need not be notarized, but any discrepancy must be reported and explained by supporting affidavits or statements accompanying the return.

15. Tax-free alcohol may be kept in two areas—a working stock and a stores stock. (Storage space is described in Basic Permit.)

16. The Board of Trustees of the hospital at the request of the administrator usually gives the power of attorney to the chief pharmacist to handle tax-free alcohol. A copy of the Board's minutes on this item is transferred to the Alcohol Tax Unit as a matter of record.

[25]Title 26 Sect. 182.61; "Storerooms or compartments must be of sufficient capacity to hold the maximum quantity of alcohol which may be possessed at any one time, and shall be securely constructed of substantial materials, and all doors, windows, and outer openings shall be equipped so that they may be securely locked."

17. As a general rule of thumb, a one percent shrinkage is not considered unreasonable.

Stills

Regulation Number 23 of the Internal Revenue Service requires that stills be registered with the Assistant Regional Commissioner, Alcohol and Tobacco Tax Division of the Region. A special form (Form 26) is supplied for this purpose which is filed in duplicate. Regulations require the naming of the place where the still is located, the kind of still, its cubic contents, the owner's name, his place of residence, and the purpose for which the still is to be used. Under Section 5174, Internal Revenue Code (1954), such registration is required *only* as to stills used or intended to be used for the distillation, redistillation, or recovery of distilled spirits (including alcohol or any dilution or mixtures thereof). Registration of stills used for distilled water only, it will be noted, is *no longer required* under this 1954 change.

A permit is issued authorizing the still to be set up and this permit should be posted in a conspicuous place near the still.

"Every still or distilling apparatus not registered as required by Section 5174, together with all personal property in the possession or custody, or under the control of such person, and found in the building, or in any yard or enclosure connected with the building in which the same may be set up, shall be forfeited. Every person having in his possession or custody, or under his control, any still or distilling apparatus set-up which is not so registered, as required by Section 5174, shall pay a penalty of $500. and shall be fined not less than $100. nor more than $1,000. and imprisoned for not less than one month, nor more than two years." (Section 5601 Internal Revenue Code of 1954.)

Specific inquiries should be referred to the Assistant Regional Commissioner, the Alcohol and Tax Unit, in the region in which your hospital is located.

V. CODES AND STATUTES (FEDERAL HARRISON NARCOTIC ACT)

Federal Harrison Narcotic Act

To a hospital pharmacist or hospital administrator, the normal workings of the Harrison Narcotic Act need no great explanations. This Act was originally passed in 1914. Regulation Number 5 concerns itself with the Harrison Narcotic Act. Every administrator and hospital pharmacist should have a copy of this regulation accessible for his ready reference.

Let me highlight* the Harrison Act and point out some of its troublesome features in hospital administration and hospital pharmacy. THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the Bureau of Narcotics of the Treasury Department have been meeting periodically during recent years to eliminate some of the confusion that exists in narcotic control and management. Much of the explanatory material I shall mention comes from these meetings.

1. *Hospital Registration.* (A) *Non-government hospitals.* Such hospitals are registered in Class 4 (authority to administer narcotics), or Classes 4 and 5 (5 being authority to deal in "exempt" narcotics), or 5, 4, and 3 (3 for retail dealers—for hospitals filling outpatient prescriptions). Physicians attached to a hospital may not use its narcotic registration number, the so-called "narcotic number," to write prescriptions or orders for an individual patient. (B) *Government hospitals.* Federal, state, county, and city hospital officials (not the hospital) qualify and usually apply for special exemption under the Act. (See Narcotic Regulation Number 5, Chapter VII, Article 91, 92, and 93 and T.D. number 48, discussed elsewhere in this report.)

The president of the hospital corporation is usually the individual in whose name the narcotic registration is issued. However, he may delegate certain authority to proper employees of the hospital. For example, he may delegate to the registered pharmacist authority to sign order forms. He may not delegate, in my opinion, the right to sign the application for registration. Applications of corporations must be signed by an officer duly authorized to act. (Article 8 of Regulation 5.) Supposedly this refers to the President, Vice President, or Secretary.

2. *Practitioners' Registration.* "Practitioners," who prescribe narcotics for, or order narcotics dispensed to, patients in a hospital, must be entitled under the laws of the state, territory, or district (Medical Practice Act) to prescribe or order dispensed narcotic drugs, and must be duly registered with the District Director of Internal Revenue, for this purpose.

3. *Interns' Registration.* Usually the state, territorial, or district Medical Practice Act sets forth the requirements for the professional right to prescribe and dispense narcotic drugs. The licensed

*A detailed study on Federal narcotic laws and regulations as applied to hospital practice appears on pages 318-325 of this issue of THE BULLETIN.

physician, dentist, or veterinarian, in good standing, has this right. However, there may be a question as to whether an intern or resident has such a right, even as limited to hospital patients, unless the Medical Practice Act or other statute confers this authority. If it is authoritatively determined that the intern has such a *legal right* limited to hospital patients, he may apply for a registration under the Federal Narcotic Act. *This is a matter which must be determined in each state.* Some authorities on this subject believe that the laws of most states do not authorize the intern to prescribe for or dispense narcotic drugs to a patient on his own independent professional judgment. In such instances, the intern cannot be authorized to prescribe narcotics by the Bureau of Narcotics because the intern is an *unlicensed practitioner.* In the former instance, *qualified or restricted licensing* gives the authority.

4. *Prescribing by Interns.* Interns, residents, and medical officers who are attending patients in the hospital, *if entitled under the state, territorial, or district Medical Practice Act* to prescribe or dispense narcotic drugs to patients *in the hospital,* may obtain the requisite registration from the Treasury Department, District Director of Internal Revenue, to complete their qualifications to write prescriptions for, or order narcotics administered to hospital patients in the course of their professional practice. However, this authority is limited to the patients assigned to the intern, resident, or medical officer, and includes no others.

5. *Damaged Narcotics.* Damaged, deteriorated, surplus, or unusable narcotics should be turned over to the District Supervisor and reported on Form 142.

6. *Responsibility for Narcotics.* The administrative head of the hospital or the president or the secretary of the board of governors of the hospital as a registrant is responsible for the proper safeguarding and handling of narcotics within the hospital. Responsibility for storage, accountability, and proper dispensing of narcotics from the pharmacy is usually delegated to the pharmacist. Likewise, the Director of Nursing is usually responsible for the proper storage at nursing stations and use as directed by physician orders. *However, delegation of authority does not relieve the administrative head of the hospital of supervisory responsibility* to insure detection and correction of any diversion or mishandling. The administrator should be certain that all possible internal control measures are observed. The Public Health Service Hospitals use eight simple forms for the control and security of not only narcotics, but also hypnotics, ethyl alcohol, and spirituous liquors. In some hospitals amphetamines are also controlled.

7. *Prescriptions Not Required.* Physicians' orders for patients normally appear on the doctor's order sheet and *no prescription is required.* The nursing floor stock used in administering narcotics is accounted for on the narcotic certificate of disposition form.

8. *Registery Number Not Required.* The physician's full name or initials must appear on the doctor's sheet. The physician's registry number is not needed.

9. *Telephone Orders.* Telephone orders for hospital patients are permissible only in *absolute necessity.* The nurse will write the order on the physician order sheet, stating "Telephone Order" and sign the physician's name and her initials. The narcotic may be administered once. The physician must verify his telephoned order by a notation on the patient's chart within 24 hours.

10. *Verbal Orders.* Verbal (oral) orders for hospital patients are permitted in a bona fide emergency. They should be handled as telephone narcotic orders.

11. *Narcotic Records.* All narcotic orders and records must be in ink, typed, or indelible pencil.

12. *Procedure in Case of Waste, Destruction, Contamination, etc.*

(a) *Aliquot Part of Narcotic Solutions Used for Dose.* The nurse shall use the proper number of tablets or ampuls from nursing unit stock. She shall expel into the sink that portion of the narcotic solution that is not to be used. She shall record the number of tablets or ampuls used and the dose given in the proper columns of the Narcotic Administration Sheet.

(b) *Prepared Dose Refused by Patient or Cancelled by Physician.* When a narcotic dose has been prepared for a patient but not used due to refusal by the patient or cancellation by the physician, the nurse shall expel the solution in the sink and record on the back of the Narcotic Administration Sheet the reason why the narcotic was not administered. Example: "Discarded: Refused by patient or order cancelled by Dr. A. Jones." The head nurse of the unit shall sign the statement and the Director of Nurses or her assistant countersigns it.

(c) *Accidental Destruction of Narcotics.* When a narcotic solution, tablet, ampul, or substance is accidentally destroyed on a nursing unit, the person responsible shall indicate the accidental loss by a check in the spaces allowed for the record on the Narcotic Administration Sheet of that narcotic. The person shall write on the back of that Narcotic Administration Sheet a complete report of the accident and sign the statement. The head nurse of

the unit will sign the statement when complete. The Director of Nurses or her assistant will then sign the statement also.

(d) *Contaminated or Broken Hypodermic Tablets and Contaminated Narcotic Solutions.* When a narcotic hypodermic tablet is contaminated or broken or a narcotic solution is contaminated, the person responsible or the head nurse shall place the tablets, particles, or solution in a suitable container and label. The person responsible, or the head nurse, shall indicate the contaminated narcotic by a check in the space or spaces allowed for the record on the Narcotic Administration Sheet of that narcotic. She shall write on the back of the sheet a complete report of the accident and sign the statement. The head nurse shall sign the statement when complete. The Director of Nurses or her assistant shall then sign the statement. The container with the contaminated narcotic shall be returned to the pharmacy. The pharmacist will receive it and note on the Narcotic Administration Sheet covering that particular narcotic that it has been returned. The hospital shall return the material either by itself or with similar narcotic material at a convenient time, to the Narcotic Bureau in the proper manner.

(In using the above procedures, the head nurse should sign entries as a witness. In addition, a professionally responsible supervisory official should initial the entries to assure an awarenes on the part of supervisory professional personnel of all matters relating to narcotics.)

13. *Procedures in Case of Loss, Theft, etc.*

(a) *Discrepancies in Narcotic Count.* Those involving small amounts (such as single doses) should be reported to a responsible supervisory official. An investigation should be made to determine the cause of the loss. A copy of the report of investigation, signed by the responsible supervisory official, should be filed with the hospital narcotic records, and appropriate action taken to prevent recurrence.

(b) *Recurring Shortages.* In cases of recurring shortages or loss of significant quantities of narcotics (several doses), a thorough investigation should be made, making every effort to determine the reason for the shortage, and the person responsible, if possible. A complete report of the incident and findings should be made to the administrative authority of the hospital. Appropriate action should be taken *immediately* to pre-

vent recurrence. A copy of the report, including any findings resulting from the local investigation, should be forwarded to the District Director of the Bureau of Narcotics in accordance with Article 194, Bureau of Narcotics Regulation No. 5.

14. *Questions of Interpretation vs Law.* Correspondence concerning interpretation of the law and regulations as they apply to hospitals should not be directed to a field office but directly to the Commissioner of Narcotics in Washington, D. C. Questions on law and regulations and violations should be directed to the local Narcotic Agents. When this line of communication is not followed, confusion results. This is understandable because locally stationed enforcement officers are concerned mainly with investigations and criminal violations and not with the special hospital problems related to registration and interpretation of Board regulations.

15. *Dual Registration Classes 3 and 4.* As mentioned earlier, hospitals are registrants in Class 4 (to administer narcotics) and also Class 3 (retailer) if they operate an outpatient department. This is one of the annoying problems that those in hospital pharmacy and hospital administration are trying to remedy. The Bureau of Narcotics insists, and rightfully so because of this dual registration, that *separate stocks and separate inventory records* be maintained for each class (3 and 4). Class 3 applies to retail dealers in narcotics and it has been ruled that hospitals and clinics must register in this class *if prescriptions are dispensed to outpatients by the hospital pharmacy.* Class 4 applies to physicians and other practitioners who administer narcotics to patients. This is the registration class required for hospitals with inpatients.

It has been obvious for some time that hospitals are misplaced in Class 4, the class used by physicians. However, there is no other class at present in which they can be included. There are some advocates for a new special class for hospitals. Should this be effected, one stock and one set of records would suffice. However, tax classes were established by law and new legislation would be needed to effect the change.

Providing a new class could be established without hurting the small hospital, it would solve the problem. I mention this for such registration would of necessity, as I see it, provide for the filling of all types of narcotic prescriptions and orders as well as for their actual bedside administration. It would be necessary therefore, for all hospitals to employ a fully qualified pharmacist to comply with the law. Some have suggested that possibly two new classes are needed, a special one for the small size hospital. How this would work in practice, I do not know. This idea is something to watch in coming years for undoubtedly something will have to be done as the number of hospitals increase and their management problems are studied.

16. *Multiple Dose Vial Problem.* Nurses claim they never obtain the number of doses from a multiple dose vial that is theoretically possible. Pharmacists have urged that a ten percent limit of tolerances be respected. The Bureau of Narcotics questions the necessity for this because they fear diversion of the narcotics involved. The Bureau of Narcotics has at one time suggested that hospitals use the U.S.P. and N.F. limit of tolerance as a guide, *i.e.,* two to 20 percent depending upon the size of the vial (0.6 ml. for a 20 ml. vial). However, there is no definite answer to this problem other than the old standby, the test of reasonableness. Excellent amber-colored, calibrated glass vials are available which facilitate checking the volume of solutions. Such calibrated vials are appreciated by nursing services in that they tend to lessen errors arising from estimating volume and help to ascertain shortages quickly. Vials of this type are obtainable from the Wheaton Co., Millville, N. J., and from other sources.

17. *State and Local Laws.* A hospital should periodically check its state and city narcotic laws as well as the Federal laws. Remember, local governments have the power to tighten and strengthen Federal laws but not lower them. For example, in Massachusetts, a narcotic prescription must be honored within *five days,* and must cite the *age* of the patient. And again, in some states, Paregoric is not an "exempt" narcotic.

18. *P.R.N. and Standing Orders.* As mentioned previously, P.R.N. orders for narcotics are permissible but should not be given for periods exceeding 72 hours, regardless of type of case, terminal, cancer or otherwise. This helps eliminate the chances of drugs being diverted illicitly after the death of a patient. *Standing orders,* those which are given routinely for a certain physician such as a pre-operative medication, are not permissible under the Act.

19. *Storage.* Narcotics must be kept in a locked, secure place. Reserve stocks should be kept in a *strong safe,* substantial enough to deter entry and heavy enough to prevent their being carried away. Other valuable property may be kept in the safe. A chest or safe meeting Underwriters Laboratories requirements for an X-60 rating is designed to offer protection against attack by tools or explosives for a period of one hour; one with a TR-60 rating protects against tools or torch; and one with a TX-60 rating protects against tools, torch, or explosives, for the same period of time. A safe with any of these ratings, or of equivalent construction, is considered "a strong safe."

For small stocks, the Bureau of Narcotics has occasionally, although reluctantly, accepted lighter safes with only a T-20 rating. This type of safe is built to resist attack by ordinary burglar's tools only, and only for a period of 20 minutes. While better than no safe at all, it offers a bare minimum of protection. Although sometimes insisted upon as a minimum requirement, it is never recommended as adequate and certainly is not adequate for safe keeping of a narcotic stock of any appreciable size or value.

Any safe weighing less than 750 pounds should be securely anchored in the concrete to the floor or wall to prevent its being carried away. If bolts are used they should be completely imbedded so they cannot be readily reached and cut, sawed, or unbolted (see Gen. Cir. 195, Bureau of Narcotics).

20. *Renewal of License.* The hospital license must be renewed annually on or before July 1.

21. *Narcotics for Physician's Office.* A physician cannot replenish his supply of narcotics for his office or for his bag from the narcotic stock of the hospital pharmacy. He must order from a drug wholesaler on a special narcotic order form supplied by the Federal government. An exception, rarely if ever used, is the single ounce of an aqueous or oleaginous solution of not over 20 percent which may be obtained when written on the physician's official Federal narcotic order blank, not on his prescription blank (Article XV of Act), and then only where the hospital is registered in Class 3.

22. *Signing Filled Narcotic Prescriptions.* Narcotic prescriptions when filled should, for the protection of the pharmacist, show on the face of the prescription the date of filling and the legal signature of the pharmacist filling (not a Federal regulation, but a regulation of some states).

23. *Keeping Narcotic Records.* Narcotic prescription and records must be kept for two years.

24. *Topical Preparations.* Solutions, ointments, and other preparations for use in the eye, ear or nose, or for rectal, vaginal or urethral administration are not considered as being preparations for external use. This is important in considering "exempt" narcotic preparations.

25. *When Large Doses Are Prescribed.* Many physicians, for their own protection and as an indication of good faith, file a letter with the local District Narcotic Office when treating patients requiring large doses of narcotic medication over long periods of time. This letter it *not* a legal requirement. It should state the patient's name, condition from which the patient suffers, and contain a statement to the effect that in the physician's opinion the narcotic is indicated in the treatment, that it will be used sometime, and that as the disease progresses the use may be substantially increased to sustain life and alleviate pain and suffering.

26. *Special Tax Stamp.* The Special Tax Stamp issued to a physician must be conspiciously displayed in his office. Penalties are made for not displaying it (Article 46). The Tax Stamp is valid only for the fixed location to which originally issued. Should a physician relocate his office, he must notify the local narcotic bureau within 30 days and have the Special Tax Stamp changed to correspond to his new office address.

27. *Refills.* Federal regulations forbid the use of "Refill Prescription No.——" or similar wording on prescription blanks. A complete new prescription must be written.

28. *Exempt Officials.* Federal Register, November 30, 1954, (Treasury Decision No. 48) has revised the procedures [26] for certification of exempt officials and the procurement of narcotics by such officials. The change applies to officials of the Army, Navy, Air Force, Public Health Service, National Guard, Civil Defense authorities, and state, territorial, insular possessions and District of Columbia officials authorized to procure, purchase and administer narcotics. In brief, Treasury Decision 48 substitutes the use of order forms for the old certificate of exemption that had to accompany the order of an exempt official and to this extent lightens the burden of that official and perhaps also of the registered supplier. An official cited in the revised regulation, *if engaged in procuring narcotics,* shall be assigned an exemption identification number. Exemption certificates will no longer be required under the new regulation. The exempt official will procure narcotic drugs and preparations in the same manner as pharmacists, physicians, or other persons registered under the law. State officials are included in this Act because of the constitutional prohibition placed on Federal government to levy taxes on a state, or segment of state government. This change become effective February 1, 1955, and is important to hospital administrators and hospital pharmacists engaged in state, county, city, or Federal hospital activities.

Oral Narcotic Prescription Law (1954)

This law, passed August 19, 1954, permits physicians to prescribe by telephone, certain narcotic drugs and preparations of narcotic drugs

[26] Sec. Treasury Decision 48, Reg. 5: New procedure for certification of exempt officials and procurement of narcotics by such officials. (Provision also in decision to allow properly authorized civil defense officials to procure narcotic drugs in emergency caused by enemy attack so proclaimed by President.)

containing little or no addiction liability. State laws are being revamped to coincide with this loosening of control. Laws of California and New York City and others are said to be in order now. The aforementioned bill had the approval of the American Medical Association, the American Pharmaceutical Association, the U. S. Public Health Service, and the Bureau of Narcotics. Drugs such as A.P.C. with codeine, ethylmorphine, apomorphine, papaverine, and narcotine are expected to be on the list. The list is not being restricted to codeine even though it was originally referred to as the "Oral Codeine Prescription Law."[27] Oral narcotic prescriptions must be reduced to writing by the pharmacist and filed in the usual manner.

[27]Note: September 1955—Oral prescription narcotic list released by Narcotic Bureau. (1) Codeine—not to exceed eight grains per fluidounce or one grain per dosage unit. Preparation must be compounded with one or more active non-narcotic ingredients in therapeutic dose or with an equal or greater amount of any isoquinoline opium alkaloid; (2) Dihydrocodeine or salt, not to exceed one and one-third grains per fluid ounce or one-sixth grain per dosage unit. Prescriptions must consist of (a) one or more active non-narcotic ingredients in therapeutic doses or with four times or greater amount of any isoquinoline opium alkaloid or salt; (3) Dihydroxy-codeinone not to exceed two-thirds grain per fluid ounce or one-twelfth grain per dosage unit; (4) Ethylmorphine or its salt when with one or more non-narcotic ingredients in therapeutic dosage; (5) Isoquinoline alkaloid alone or in combination with other active non-narcotic constituents; (6) Apomorphine or salts alone or in combination; and (7) Nalorphine or salts alone or in combination.

SUPPLEMENTARY BIBLIOGRAPHY

American College of Surgeons: *Manual of Hospital Standardization,* 1946.

American Hospital Association: *The Magic Key to Hospital Literature.*

Ibid.: *Manual on Insurance for Hospitals,* 1955.

Ibid.: *Hospitals,* Administrators Guide Issue, 1954, 1955.

Archambault, G. F.; Hospital Pharmacy as a Career, *Sci. Counselor 17*:61, 1954.

Ibid.: A Narcotic Control System for the General Hospital, *Hospitals 28*:112 (Jan.) 1954.

Ibid.: Procedural Manuals for Hospital Pharmacies, *Am. Profess. Pharm. 19*:42 (Jan.) 1953.

Ibid.: Hermetically Packaged Surgical Fluids, *Pharm. International 6*:35 (Dec.) 1952.

Ibid.: Practical Applications for Minimum Standards (in 3 parts), *Hosp. Progress 33*:90 (Oct.), *33*:80 (Nov.) and *33*:84 (Dec.) 1952.

Ibid.: The Business Side of Hospital Pharmacy, *Bull. Am. Soc. Hosp Pharm. 9*:102 (Mar.-Apr.) 1952.

Ibid.: Standards for Prescription Containers, *Bull. Am. Soc. Hosp. Pharm. 8*:108 (Mar.-Apr.) 1951.

Arthur, W. R.: *Law of Drugs and Druggists,* ed. 3, St. Paul, Minn., West, 1947.

Bierman, C. H. and Archambault, G. F.: The Hospital Pharmacy from the Administrator's Point of View, *Hospital Management 57*:86 (Mar.) 1944.

Commonwealth of Massachusetts: Pharmacy Laws—Rules and Regulations of the Massachusetts Board of Registration in Pharmacy.

Drawback on Tax on Distilled Spirits Used in Manufacturing of Non-Beverage Products—Regulation No. 29, U. S. Treasury Department, Bureau of Internal Revenue, 1947.

FitzGerald, E. J. and Archambault, G. F.: The Public Health Service, *Bull. Am. Soc. Hosp. Pharm. 9*:270 (July-Aug.) 1952.

Food and Drug Administration: Service and Regulatory Announcements—Food, Drug, and Cosmetic No. 1, Revision No. 3, Department of Health, Education, and Welfare.

American Medical Association Council on Pharmacy and Chemistry: The Therapeutics Trials Committee—Its Purpose and Procedures, Mar. 1, 1948.

Francke, Don. E.: Evaluation of Management Guides, *Hosp. Progress 35*:88 (Sept.) 1954.

Goodness, J. H.: Personal Communications.

Harrison Narcotic Act—Regulation No. 5 and Supplements (1949), U. S. Treasury Department, Bureau of Narcotics.

Himmelsbach, C. K. and Nelson, K.: The Responsibilities and Functions of the Individual Pharmacy Committee Members, U. S. Public Health Service, Division of Hospitals Circular Memorandum No. 54-130, March 1954.

Hogan, T. J. and Archambault, G. F.: Meeting Problems of Design in Hospital Pharmacy, *Bull. Am. Soc. Hosp. Pharm. 10*:293 (July-Aug.) 1953.

Hope, M. C.: The Hospital Survey and Construction Program, *Am. J. Public Health 39*:7, 1949.

Hayt, Hayt, and Groeschel: *Law of Hospital, Physician, and Patient,* ed. 2, New York, Hospital Textbook Co., 1952.

Industrial Alcohol: U. S. Treasury Department, Bureau of Internal Revenue, Regulation No. 3 (1942) and Supplements.

Indiana, State of: Regulating and Licensing Hospitals, Chap. 346. Also, General Regulations for Hospitals.

Jeffries, S. B.: A New Approach to Costing and Pricing Prescriptions in the Hospital Pharmacy, *Bull. Am. Soc. Hosp. Pharm. 11*:455 (Nov.-Dec.) 1954.

Joint Commission on Accreditation of Hospitals: Standards for Hospital Accreditation, December 1953.

MacEachern, M. T.: *Hospital Organization and Management,* Chicago, Physicians' Record Co., 1940.

McGibony, J. R.: *Principles of Hospital Administration,* New York, Putnam, 1952.

Marihuana Act: Regulation No. 1 (1937), U. S. Treasury Department, Bureau of Narcotics.

Petit, W.: *Manual of Pharmaceutical Law,* New York, Macmillan 1951.

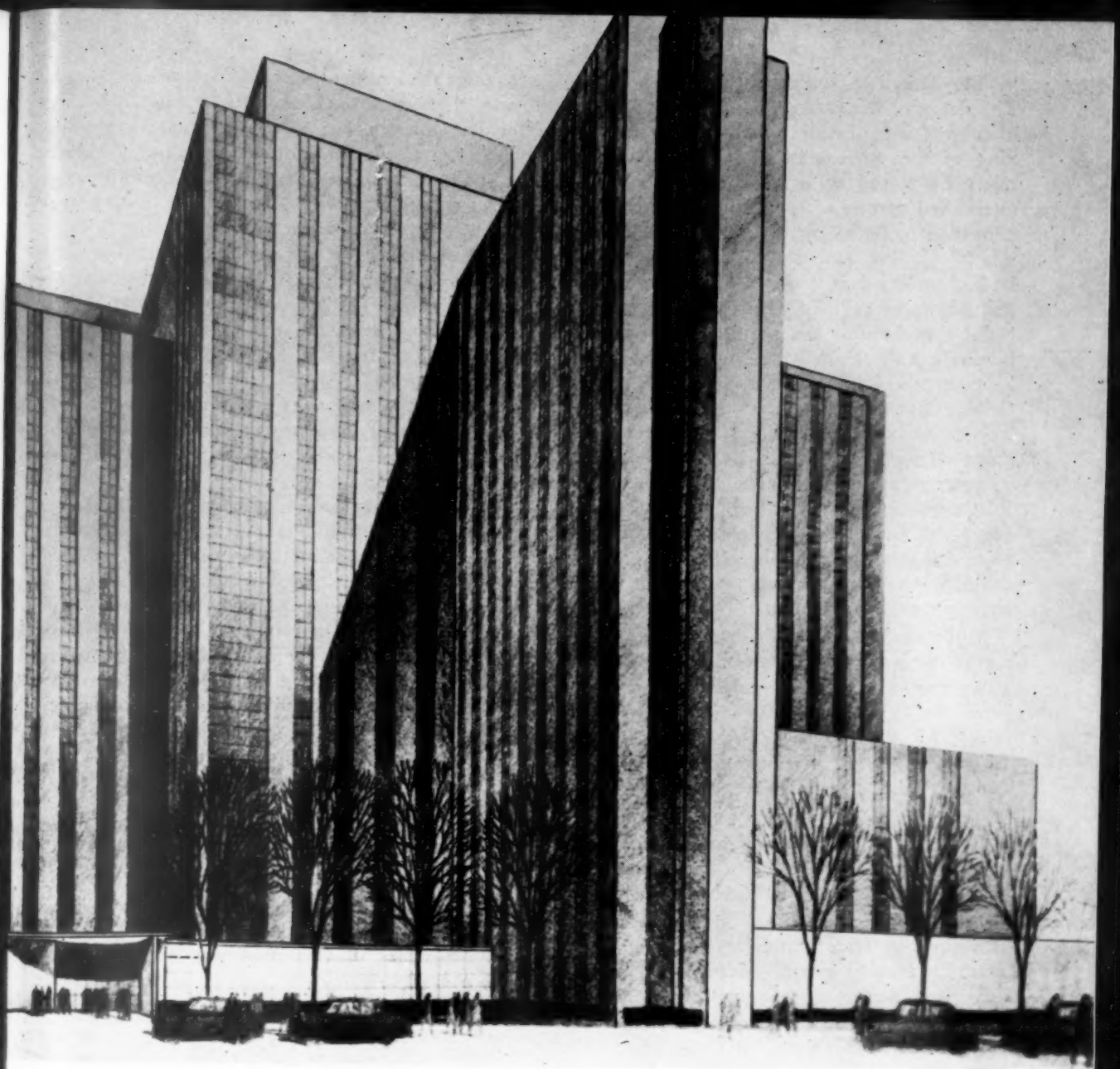
Regan, L. J.: *Doctor and Patient and the Law,* ed. 2, St. Louis, Mosby 1949.

Registration of Stills, Regulation No. 23, U. S. Treasury Department, Bureau of Internal Revenue.

Skolaut, M., Scigliano, J., and Salvino, J.: The Central Sterile Supply of a Pharmacy Department, *Bull. Am. Soc. Hosp. Pharm. 11*:114 (Mar.-Apr.) 1954.

Sloan, R. P.: *This Hospital Business of Ours,* New York, Putnam 1952.

Trautman, J., Masur, J., and Archambault, G. F.: Facilities for Pharmaceutical Service, Clinical Center, National Institutes of Health, *Bull. Am. Soc. Hosp. Pharm. 9*:38 (Jan.-Feb.) 1952.



Recommendations of the
Joint Commission on Accreditation of Hospitals
Regarding Hospital Pharmacy

by LeRoy E. Bates

THE INFLUENCE OF THE PROGRAM of the Joint Commission on Accreditation of Hospitals is tremendous and grows with each passing month. There is no hospital department that is concerned with the care of patients that is not encompassed by the requirements and recommendations of the Joint Commission. It is important, therefore, for the head of each department to be aware of the objects and mechanics of the accreditation program and to know thoroughly the standards and interpretations which relate to that department.

Approval programs for hospitals began with the Program of Hospital Standardization inaugurated

LeRoy E. Bates, M.D., is Associate Secretary, Council on Professional Practice, American Hospital Association, Chicago, Ill.

by the American College of Surgeons in 1918. The desire of the College to advance the practice of surgery was directly responsible for the beginning of the movement. In order that surgery might be placed on a higher plane, the College established as one of the major requirements for admission to fellowship that each candidate submit 50 medical records of patients upon whom he had operated as evidence of surgical judgment and technical ability. Few candidates, however, could comply with this requirement inasmuch as hospitals in the United States and Canada seldom kept records which provided accurate data. The College also discovered that the average hospital lacked the laboratory, X-ray, and other essential diagnostic and therapeutic facilities necessary for a proper preoperative study of the patient. Furthermore, medical staffs of hospitals were not organized; the professional work generally lacked supervision; most hospitals were deficient from a standpoint of scientific efficiency. The need for improvement was evident.

Minimum standards for the hospital departments were written and the field inspections begun. Surveys by the American College of Surgeons in 1918 covered 692 hospitals of which only 12.9 percent were eligible for approval. By 1950, of 2,429 hospitals under survey by the College, 94.6 percent were acceptable for approval.

What had started out as an idea to improve surgery had developed into a program which raised standards of all hospital care.

Several years ago the College indicated that it desired to transfer the operation of the program to another group. After much discussion, an independent, nonprofit corporation was created in 1952 by five health organizations in the United States and Canada to take over the approval program.

This corporation was the Joint Commission on Accreditation of Hospitals. Each of the member organizations appoints representatives of the chief governing body. The American College of Physicians appoints three, the American College of Surgeons three, the American Hospital Association seven, the American Medical Association six, and the Canadian Medical Association one. One of the American Hospital Association's representatives is a Canadian.

Purposes

The purposes of the accreditation program are to improve the organization and administration of the hospital; to promote high quality medical and hospital care in all its aspects; and to encourage the maintenance of the essential diagnostic and therapeutic services in the hospitals. To achieve this purpose, the Joint Commission establishes standards for hospital operation, conducts a survey upon invitation of the hospital and recognizes compliance with standards by issuing certificates of accreditation.

To be eligible for a survey by the Joint Commission, a hospital must be accepted for listing in the Guide Issue of *Hospitals,* Journal of the American Hospital Association, it must have been in operation one year, and it must have a minimum of around 25 beds.

Surveys of hospitals are conducted by the field staff of one of the member organizations of the Joint Commission or of the Joint Commission itself.

A hospital desiring accreditation usually writes to the American Hospital Association for material which will be helpful in getting ready for the surveyor's visit. The hospital then writes to the Joint Commission requesting a survey. The surveyor visits the hospital, makes his inspections, completes a questionnaire, and returns his recommendations to the Joint Commission.

The surveyor's function at the time of his visit to the hospital is that of an informed reporter and advisor. He is expected to talk to the administrator, to representatives of the clinical departments, and to representatives of the main administrative departments. He interprets the standards and recommendations of the Joint Commission and he is as helpful as he can be in assisting the hospital improve its performance.

Accreditation is granted or withheld by action of the Board of Commissioners itself, although, of course, tremendous weight is given by the Commissioners to the recommendation of the surveyor.

Accreditation may be granted for three years, for one year, or the hospital may be disapproved for either type of accreditation.

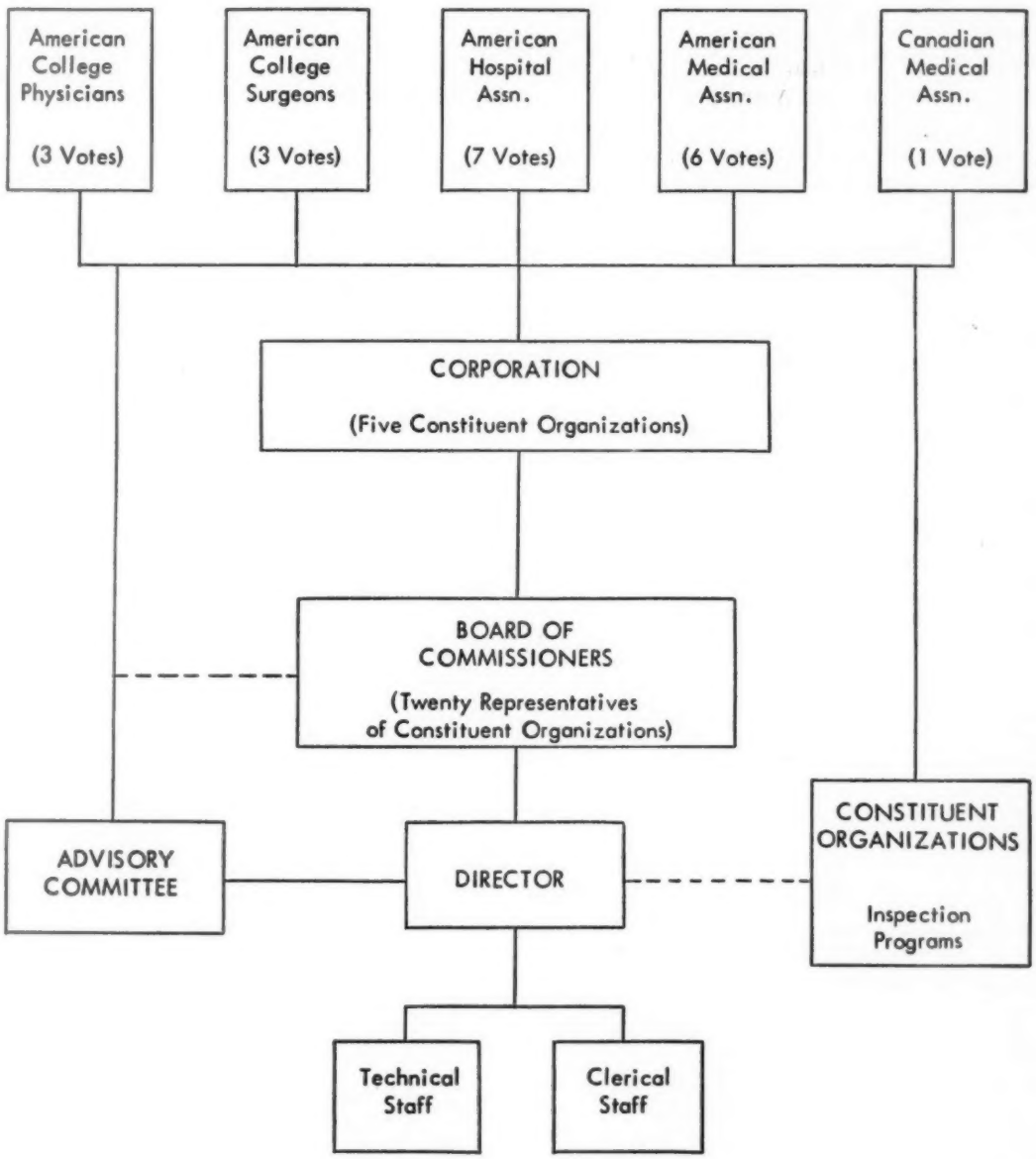
If a hospital is accredited for either three years or for one year, it will be resurveyed by the Joint Commission prior to the expiration of accreditation without invitation from the hospital.

A hospital which receives one-year accreditation must meet the standards for three-year accreditation at the time of the second resurvey thereafter, or it will be reduced to nonaccredited status. The Joint Commission will not resurvey a hospital disapproved for accreditation except upon invitation of the hospital.

Accreditation is regarded as a voluntary program. This is true in the sense that the hospital must invite the Joint Commission's survey in the initial instance. But, through no effort of

CORPORATE STRUCTURE

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS



the Joint Commission, mounting pressures are being placed on hospitals to achieve full accreditation.

Articles in the popular press advise the public to look for the stamp of approval of the Joint Commission on their community hospitals. Physicians are often reluctant to practice in nonaccredited hospitals; outside organizations too, in striving to better achieve their own objectives are inadvertently having a pronounced influence on the accreditation program.

Many Blue Cross Plans have established accreditation as a first requirement in accepting the hospitals which they contact. The Welfare and Retirement Fund of the United Mine Workers of America, the National Foundation for Infantile Paralysis, the National Society for Crippled Children and Adults, the American Cancer Society, and other voluntary health organizations attach significance to a hospital's accreditation status in determining where their funds are spent.

In general, the American College of Hospital Administrators limits admission and advancement of its membership to administrators in accredited hospitals. The success of fund raising projects or applications for loans for hospitals may very well depend on whether the hospital is accredited. Recently the Massachusetts law pertaining to hospital licensing was amended to permit the health department to examine the medical records and staff qualifications of voluntary hospitals not fully accredited by the Joint Commission.

Standards

There are four publications of the Joint Commission:

1. "Standards for Hospital Accreditation."
2. "Principles for Establishing Medical Staff Bylaws, Rules and Regulations."
3. "Bulletin of the Joint Commission on Accreditation of Hospitals."
4. "Joint Commission on Accreditation of Hospitals' Survey Report."

The document on which the accreditation program is based is the "Standards for Hospital Accreditation." Amendments to accreditation standards are written by a Committee of the Board of Commissioners and approved by the total board. The "Standards" define the areas of the hospital that fall within the scope of the accreditation survey and the emphasis that is placed on the individual department in arriving at a total evaluation of the institution.

The "Standards" lay down the requirements. It includes statements of basic principles and procedures regarding the physical plant, the governing body, the Dietary Department, the Medical Records Department, the Pharmacy or drug room, the Laboratory, the Radiology Department, the Medical Library, the Nursing Department, the Medical Social Service Department, the Emergency Department, the Department of Anesthesia, the General Practice Department, the Rehabilitation Department, the Outpatient Department, and the Department of Dentistry. Half of the "Standards" are devoted to the medical staff. The greatest attention is paid to the effectiveness of the medical staff in evaluating and improving the clinical work performed in the hospital.

Pharmacy

Here is what the publications of the Joint Commission on Accreditation of Hospitals and the published correspondence of Dr. Kenneth B. Babcock, its director, have to say about the pharmacy or drug room:

From the "Standards for Hospital Accreditation"

"a. There shall be a pharmacy directed by a registered pharmacist or drug room under competent supervision.

b. Facilities shall be provided for the storage, safeguarding, preparation, and dispensing of drugs.

c. Personnel competent in their respective duties shall be provided in keeping with the size and activity of of the department.

d. Records shall be kept of the transactions of the pharmacy and correlated with other hospital records where indicated. Such special records shall be kept as are required by law.

e. Drugs dispensed shall meet the standards established by the United States Pharmacopeia, National Formulary, New and Nonofficial Remedies, British Pharmacopoeia, or Canadian Formulary.

f. There should be an automatic stop order on dangerous drugs."

From the Manual of Instructions to Surveyors

"It is ideal, of course, that each hospital have its own pharmacy with a registered pharmacist. However, it is not necessary in smaller institutions where they have good service from the local drug store. In these situations there should be a drug room which is under good supervision with well established controls. It should be noted that only standard pharmaceutical preparations are used and that no questionable proprietary drugs are on the shelves of the drug room or pharmacy. An active pharmacy committee is important in a hospital of any size in assembling the value of new drugs as they come on the market.

"There should be a formulary or drug list kept current. This serves as an important control on the drugs stocked. It may be a formulary which the hospital staff has prepared or it may be one used in several institutions.

"An automatic stop order on dangerous drugs is a good means of control. This includes narcotics, antibiotics, and toxic drugs. Special attention should be given to proper narcotic and barbiturate control, both in the pharmacy and on the wards."

FROM THE SURVEY REPORT

1. The location of the pharmacy or drug room is suitable.
   Yes——— No———
2. It is adequately supplied with official preparations.
   Yes——— No———
   It is well equipped.
   Yes——— No———
3. A registered pharmacist is in charge.
   Yes——— No———
   If not, prescriptions are compounded by a qualified pharmacist elsewhere.
   Yes——— No———
4. There is control of the department in the absence of the person in charge.
   Yes——— No———
5. Only U.S.P., N.F., N.N.R., or B.P. quality preparations are used.
   Yes——— No———
6. Narcotics, hypnotics, and alcohol are handled under properly controlled conditions.
   Yes——— No———
   Floor supplies of these drugs are properly controlled.
   Yes——— No———
7. There is an automatic stop order on dangerous drugs.
   Yes——— No———
1. There is a pharmacy committee of the medical staff.
   Yes——— No———
2. A formulary or drug list is kept current.
   Yes——— No———

FROM DOCTOR BABCOCK'S PUBLISHED CORRESPONDENCE

QUESTION. *What is the requirement of the Joint Commission on Accreditation of Hospitals regarding a formulary?*

ANSWER. "Usually a formulary is considered to be a comprehensive procedure book such as is used or issued by large teaching hospitals. This is certainly a goal to be sought and is considered part of the armamentarium of such an institution. However, in smaller hospitals this might be unnecessary and not feasible. In the latter, a drug list is all that is required. This list should be amended at regular intervals by the pharmacy committee of the staff with the cooperation of the pharmacist (consulting or otherwise) and the administration.

"This list assures that drugs of U.S.P., N.N.R. and B.P. quality only are used and that duplication of medications is not maintained. Such duplication not only leads to crowding of the pharmacy facilities but is an economic drain on the hospital.

"Similarly, the pharmacy committee is responsible for policies regarding storage of medications and control of dangerous drugs on the floors . . ."

QUESTION. *What is the reason for "stop orders" on dangerous drugs?*

ANSWER. "Physicians, hospital administrators, and nurses have observed that many drug orders are allowed to run for a considerable period of time due to oversight. This practice can be dangerous to the patient in many instances as well as expensive.

"The Joint Commission asks that each hospital medical staff study this problem, formulate a list of drugs to be placed on this "stop order" list, and set a "stop order" time. This "stop order" is already in force in many hospitals.

"The drugs most often found on the "stop order" list are narcotics, sedatives, anticoagulants, and antibiotics. In most hospitals the average length of time that they may be used without reorder is 48 hours."

QUESTION. *My medical staff does not understand the "stop order" on dangerous drugs and is questioning the reasons for it. I have been asked, "Is the Joint Commission questioning the physician's right to prescribe what he desires to give the patients?"*

ANSWER. "A thousand times, NO. The Commissioners of the Joint Commission have no desire to tell physicians what kind of and how much medicine they may give to their patients. They are interested in the fact that drugs, especially dangerous drugs, be given properly with reasonable medical staff controls. The Commissioners are interested in the medical staff controls to prevent indiscriminate and deleterious usage of dangerous drugs.

"For example, a specific order on a chart for pencillin, 400,000 units q/4 hours for 7 days, is not questioned. It is a specific fixed order. An order for penicillin q/4 hours with no time limit on it would be criticized. For the benefit of the patient the Joint Commission is asking hospital medical staffs to create a medical staff ruling that would require all medications, not specifically prescribed as to time and dosage, be automatically stopped after a given time limit set by the staff.

"The Commission knows of one case where ergot was given q/4 hours and not stopped until gangrene set in. The result was amputation of three fingers and a law suit. The physician stated that he only intended to order the drug for 24 hours. He did not write it down; the nurse did not call it to his attention.

"He should have ordered the drug with a specific time limit or a hospital medical staff rule should have stopped it after 48 hours by the automatic stop-order rule. He then could have reordered the drug if he so desired.

"Another case is in our files of the giving of Dicumarol with resulting death because it was given for days longer than had been the intent.

"The way one hospital handled this matter is shown below. It could be copied in principle by any hospital desiring to do so. "All drug orders for narcotics, sedatives and hypnotics, anticoagulants, and antibiotics (administered orally or parenterally) shall be automatically discontinued after 48 hours, unless (1) the order indicated an exact number of doses to be administered, (2) an exact period of time for the medication is specified, or (3) the attending physician reorders the medication."

"In this hospital drugs in common usage that would fall in the above classifications are:

Narcotics: morphine, Demerol, codeine, codeine compounds, Dilaudid, Levo-Dromoran, Nisentil, etc

Antibiotics: the penicillins, the streptomycins, tetracycline, Achromycin, Panmycin, Steclin, Tetracyn, Chloromycetin, erythromycin, Ilotycin, Erythrocin, neomycin, etc.

Sedatives and hypnotics: barbiturates (other than phenobarbital), chloral hydrate, paraldehyde and the nonbarbiturates (Placidyl, Valmid, Dormison, Noludar, Doriden, etc.).

Anticoagulants: Dicumarol, heparin, Tromexan.

Barbiturates: Nembutal, Seconal, Tuinal, Carbrital Delvinal, Amytal."

SOME ASPECTS OF THE *product duplication problem* IN HOSPITALS

by AUGUST H. GROESCHEL

DURING THE PAST SEVERAL YEARS it has been my privilege to become acquainted with an increasing number of you and your colleagues in the important work of hospital pharmacy and to learn from you experts, something of the problems which you encounter in the performance of your duties. This background makes me more than a little reluctant to attempt to discuss with you today a subject which, I am confident, any one of you could handle far better than I can. For this reason, and in keeping with my role of medical or hospital administrator, I shall seek to avoid details and restrict myself to a few brief general comments on "some aspects of the product duplication problem in hospitals."

At the very outset, let me make is perfectly clear that I speak only for myself; I do not speak for any organizations or committees of hospitals or physicians; obviously I do not speak for the hospital which I am privileged to serve.

Much has been said and written on this subject during the past several years and particularly during the past ten months. I recognize among you, a number of those who have spoken and written clearly and forthrightly. If I repeat, without adequate acknowledgment, some of the statements you have spoken or written, I beg your indulgence and hasten to remind you, first, that imitation is the sincerest form of flattery and, second, that if you look hard enough you will find that your idea has been expressed before, by someone else and better than you expressed it yourself.

So much by way of introduction! Now to the subject at hand.

AUGUST H. GROESCHEL, M.D. is Associate Director for Professional Services, The New York Hospital and Assistant Professor of Public Health and Preventive Medicine, Cornell University Medical College.

Presented at the Annual Convention of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS at New York City, April 29, 1957.

The Problem

A few short months ago, you and I, along with millions of others watched with increasing anxiety and concern the disintegration of the mutual confidence and cooperation which had existed for many years between our country and our allies, Great Britain and France. This was brought about by a decision on the part of our allies to take unilateral military action in an effort to settle several vexing international problems in the Near East and North Africa. Regardless of whether their action was justified or not or whether it would be proven in the long run to be wise or not or whether or not our government was partly to blame—the sad fact remains that the failure on the part of our allies to act in consultation with and in unity with the government of our country, was a serious diplomatic and political blunder, prejudicial to the best interests of all countries concerned.

The blunder *could* have resulted in calamity to the western democracies. It *did* result in the premature resignation of an able and devoted Prime Minister of Great Britain. The damage which resulted was serious and costly in lives and

property, which is still far from being repaired, despite the determined efforts of our own government as well as those of our allies.

Realizing that practically every analogy can be proven to be defective in some respect or other, nevertheless I would like to draw an analogy between the international diplomatic and political problem just outlined, and the controversy which has developed over almost the identical period of time in a completely different field. I refer of course to the serious controversy which apparently has arisen during the past ten months between the leadership of the National Pharmaceutical Council (which purports to represent some of the largest and most reputable pharmaceutical companies of this country)—and this country's hospitals. The hospitals of this country and the reputable pharmaceutical companies of this country have cooperated in the past as loyal allies in a common effort to make better medical care available to the public. This cooperation has been particularly notable in the area of research and development of new drugs. Nowhere has this cooperation been closer, more effective, more mutually advantageous, and more contributory to the health and welfare of all of our people than between the pharmaceutical companies with large research and development programs and the hospitals with large clinical research programs.

It is ironic and at the same time highly significant that practically every one of the hospitals supporting a clinical research program has for many years pursued a policy with respect to the use of drugs which has provided for (1) a highly effective Pharmacy and Therapeutics Committee of the Medical Staff, (2) a hospital formulary, and (3) the use of generic rather than brand names. The hospitals which have cooperated most closely with the leading pharmaceutical companies in the research and development of new drugs now find themselves under attack by their presumed allies because of the very policies and procedures which made it possible for them to cooperate most effectively in the research and development of new and better drugs.

How and when did controversy start?

The "how," I am unprepared to speculate on at this time. The "when" is somewhat simpler. A clue may be detected in an article in the July 16, 1956 issue of the *American Druggist* entitled "Substitution Drops in Retail Pharmacies but Rises in Hospitals, Survey Shows." I expect that many of you are well acquainted with this article. However, because it summarizes the two points of view on the controversy, I will with your permission quote from it as follows:

American Druggist, July 16, 1956 **"Substitution Drops in Retail Pharmacies but Rises in Hospitals, Survey Shows"**

"Dispensing on generic name basis gains in hospitals; makers find substitution in stores is 4%.

"The practice of substitution in the filling of prescriptions has declined noticeably during the past year—so far as retail pharmacists are concerned. But substitution by hospital pharmacists appears to be on the increase.

"This situation is turned up by *American Druggist's* 3rd survey of substitution. The first two studies were conducted in 1953 (July 6, 1953 *A.D.*) and in 1955 (July 18, 1955 *A.D.*).

"While manufacturers were almost unanimous in reporting a downtrend in substitution by retailers, a significant number disclosed that they have encountered an increasing tendency among hospital pharmacists to ignore brand specifications in filling Rxs.

"Generic Names: *These were some of the points made in this connection by manufacturers*:

"Hospital pharmacists more and more are running their pharmacies on a generic name basis. When a doctor attending to a hospital patient writes a prescription for a particular brand of a drug, the pharmacist dispenses whichever brand he stocks of that drug.

"Hospital pharmacists have taken on themselves the right to do this because they believe that money can be saved as a result.

"Hospital pharmacies often buy drugs at the cheapest price—and charge patients at the prices prevailing for the brands actually specified by doctors.

"Substitution by hospital pharmacists is harder to stop than is substitution by retail pharmacists. It is not feasible in most cases to get a pharmacy board to take action against a hospital pharmacy.

"The Other Side: *To get hospital pharmacy's side of the story, American Druggist checked with a number of men in the field. These were some of the points made by the chief pharmacist of a major hospital, for many years a leading spokesman for hospital pharmacy*:

"It is true that, in recent years, there has been an increase in the extent to which hospital pharmacies operate on a generic name basis. What this means is that, where 5 reputable manufacturers make a particular drug, the pharmacy will restrict its inventory to just one of those brands.

"Substitution does not take place unless there is 'an effort to deceive' the doctor or the patient. This does not apply in hospital pharmacies— because the hospital's medical staff has generally been told in advance, and

has agreed that only one brand of a drug will be dispensed, no matter which is specified.

"In other words, what is practiced in hospital pharmacies may be described as "substitution in advance'—resulting from discussion and agreement with the medical staff.

"It would be 'silly', from an economic viewpoint, for a hospital pharmacy to stock all reputable brands of a drug, especially in connection with those drugs on which considerable duplication has taken place. Some hospital pharmacies, wishing to stock a drug, will invite bids from several manufacturers of the product—and will give the entire order to the lowest bidder.

"But buying on a price basis can be dangerous—particularly in city or county hospitals which are under strong pressure to keep costs low, and may therefore order drugs from relatively unknown packers."

The article I just quoted did much to bring the controversy out into the open. It was helped along very effectively by a second article which appeared in the *American Druggist* for January 28, 1957. Let me quote from that article now as follows:

American Druggist, January 28, 1957 **"NPC: Why Substitution in Hospitals?"** *"Group will ask opinion research organization to find out why practice is on the increase.*

"The National Pharmaceutical Council is about to engage an opinion research organization to find out why substitution in filling prescriptions is practiced in an increasing number of hospital pharmacies—with the approval, or at the insistence, of hospital managements.

*"American Druggist learned last fortnight that the study will be the first step in a campaign by NPC to bring about a reduction in substitution in hospitals—which is considered by top officers of NPC to be the major problem now facing the organization. In fact, one pharmaceutical company executive, who is an officer of NPC, told American Druggist that all his NPC activities for the coming year will be aimed at the hospital substitution problem.**

"On The Rise: Last July, *American Druggist's* latest annual survey of substitution disclosed that, while manufacturers felt substitution in retail pharmacies was pretty much under control, they felt it was on the increase in hospital pharmacies (July 16, 1956, *A.D.*).

*"NPC now feels, according to several of its officers, that the time has come to do something about the hospital situation. More and more cases are being uncovered, they said, in which hospital pharmacists are under orders to supply only one particular brand of a drug, no matter what brand is specified by the doctor who writes the particular prescription.**

"Reasons: The opinion survey which is to be conducted shortly will cover both pharmacists and administrators in hospitals. It will seek to find out if the principal reason for substitution is the money saved by stocking only one brand of a drug—or if there are other reasons why hospital officials believe that substitution is justified.

"A.D.'s substitution survey last year turned up the fact that some hospital pharmacists and administrators believe that substitution does not take place unless there is an effort to deceive the doctor or the patient. They argue that this does not apply in hospital practice—because the hospital's medical staff has generally been told in advance, and has agreed, that only one brand of a drug will be dispensed, no matter which is prescribed.

"Price Basis: It was also pointed out that some hospital pharmacies, wishing to stock a drug, will invite bids from several manufacturers of the product—and will give the entire order to the lowest bidder. In this connection, other hospital pharmacists—and manufacturers—pointed out that buying on a price basis can be dangerous, particularly when administrators are under pressure to keep costs low, and may therefore order drugs that are purchased from relatively unknown packers.

"Rx Boards: In its campaign against retail pharmacy substitution, which began in 1953, NPC has proceeded principally through boards of pharmacy—showing the boards how they can use their authority as a means of curbing substitutors.

"So far as hospitals are concerned, however, NPC isn't sure that the pharmacy boards would be willing or able to take action against substitution. That is why the opinion survey is being conducted to see if it will turn up some other approach to the problem."

Further evidence of the determination of the National Pharmaceutical Council to push its drive against rational drug therapy in hospitals is outlined in an article in the *American Druggist* of January 14, 1957 entitled "NPC Shifts Substitution Drive to MDs."

American Druggist, January 14, 1957 **"NPC Shifts substitution Drive to MDs"** *"Backbone of program is book that lists 24 reasons why brand names are vital on Rxs*

"This year, the National Pharmaceutical Council is shifting the emphasis of its anti-substitution campaign from the pharmacist to the physician.

"The backbone of this new phase of the council's drive against substitution is a booklet addressed to physicians, entitled:

* Author's italics

'24 Reasons Why Rx Brand Names Are Important to You.'

"To the second annual meeting of NPC, Robert A. Hardt, president of the council, reported that distribution of the booklet to the nation's physicians will be so thorough that 'no physician can say he hasn't read it on the grounds that he hasn't seen it.'

"Described as the council's 'major project for the coming year', the booklet spells out the reasons which make substitution medically dangerous, largely on the basis of arguments marshalled by Newell Stewart, executive vice president, and Wilbur Powers, secretary."

I have here a copy of the NPC booklet "24 Reasons Why Rx Brand Names Are Important to You." Probably some 200,000 copies have been distributed to the practicing physicians of this country. The booklet, despite its obviously expensive and highly professional format seems to me to waste its time emphasizing the obvious and fails to make a valid point at least insofar as the problem pertains to hospitals. The following paragraph extracted from the introduction to the booklet will, I believe, illustrate what I am driving at:

> "However, there is at times an inclination to use generic names. Formularies listing so-called 'equivalents' are consulted and prescriptions calling for specific brands are sometimes filled with 'equivalents'. This practice of ignoring the specified orders of physicians can under certain conditions be detrimental to the patient—and is even contrary to applicable laws. However we will not here attempt to discuss the economic, moral or legal aspects of brand name substitution. Instead we shall show why 'equivalents' often are *not*."

Some Suggestions

I have purposely taken considerable time to outlined the controversy to date at least insofar as this can be done from the material available.

During the few remaining minutes I would like to make a few suggestions.

I. *To individual hospitals and all of the people concerned with them including, their trustees, their medical staffs, their administrators and their pharmacists, I would suggest the following:*

1. *Stand fast in your support of your medical staff, its Pharmacy and Therapeutics Committee, your hospital formulary, your policy of rational drug therapy, the use of generic rather than trade names.*

The validity of your position in support of all these things is attested to by the approval given by the national medical and hospital organizations concerned deeply with the maintenance and improvement of the highest quality of medical care. Their approval is expressed through their active participation in the inspection and evaluation of hospitals through the Joint Commission on Accreditation of Hospitals. Take confidence in the fact that you are in good company and that your number is increasing steadily every year.

2. *Review the practices and procedures employed by your individual hospital in implementing your policies with respect to the use of the formulary and the use of generic rather than trade names.*

This is to insure that you will always be able to demonstrate without difficulty or delay that your practices and procedures are in complete conformity with applicable legal, ethical and moral standards. In making this review you can obtain sound advice through your own hospital's lawyer as well as counsel for your state hospital association and your own AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

II. *To Individual Pharmaceutical Companies—Members of the National Pharmaceutical Council.*

1. *Study carefully the program which is currently being pushed by the National Pharmaceutical Council of which you are a member.*

Make certain that the program against hospitals' use of the formulary system and generic names is what *you* want. Don't forget that, as a member of the Council, you participate in the results of what your Council does—good or bad. In terms of your relationship with hospitals, physicians and the general public, you may well find that the Council's current program is unwarranted, unwise, and unpopular. In addition you probably will be embarrassed to find out one day that it is unsuccessful.

III. *To the Leadership of the National Pharmaceutical Council.*

1. *Review your program against hospitals and their use of formularies and generic terminology. Study carefully the findings of your current opinion research survey.*

Are you sure that this is the program which you want your member companies to remember you by?

2. *Sit down with representatives of the American Medical Association, the American Hospital Association and particularly the* AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Review your present program in the light of the objectives and problems of the hospitals, their medical staffs, their governing boards, and their patients. Make an honest attempt to understand their position. You may well be surprised to find that your problem is not with hospitals, their formularies and their use of generic names but rather with the "imitators and counterfeiters" among the pharmaceutical companies with which you compete. You may be pleased to find, within the American system of free enterprise, whose advantages you enjoy and insist upon, a way to combat successfully the unfair competition of your *real* enemies, the "imitators" and the "counterfeiters" in the pharmaceutical industry.

Conclusion

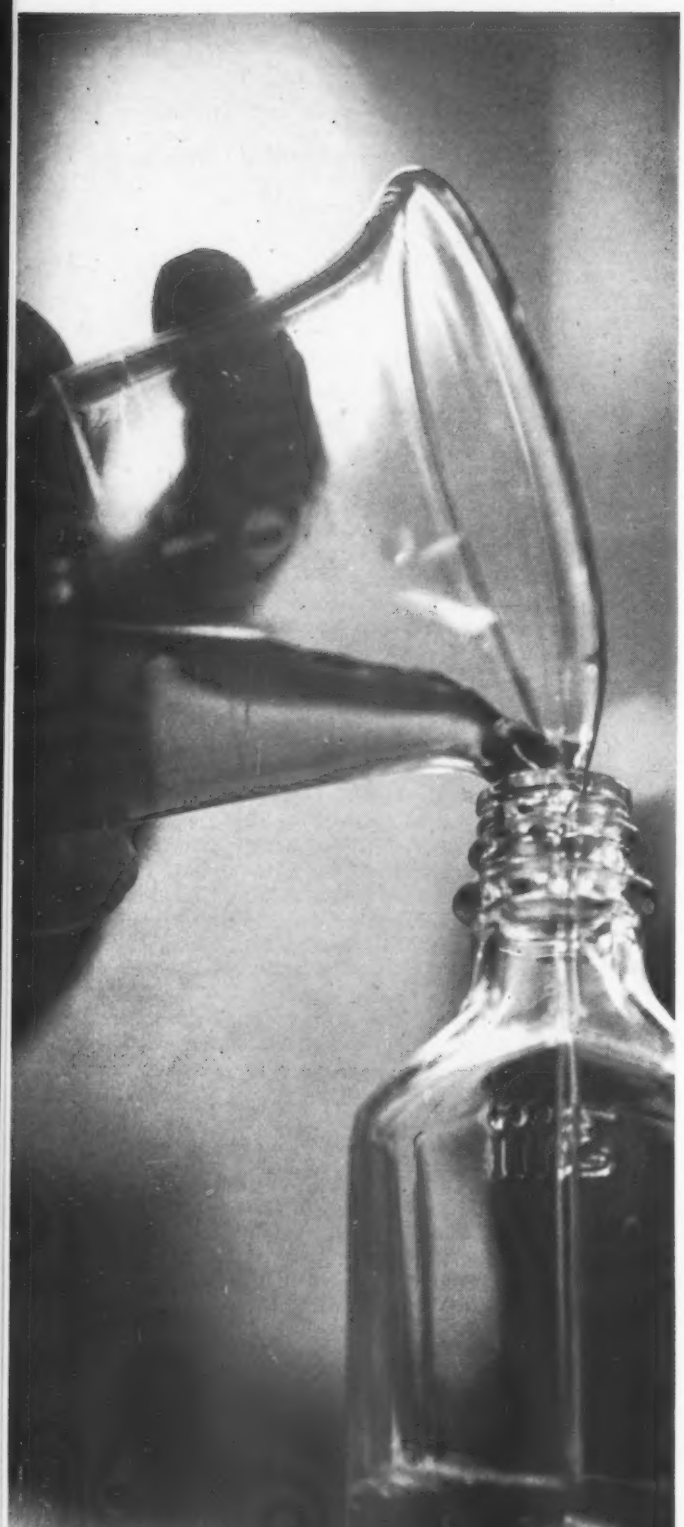
In conclusion let me quote briefly the following from the preface of the *New York Hospital Formulary and Therapeutic Guide* which was published in 1951 by Appleton-Century-Crofts, Inc. (I am proud to have participated in the preparation of this formulary as a member of the Formulary Committee of the Medical Board. The Secretary of this Committee at that time was your distinguished colleague and fellow member Dr. Donald A. Clarke, now a member of the research staff of the Sloan-Kettering Institute. Currently the secretary is your colleague and our able and dynamic Apothecary-in-Chief, Mr. Norman N. Baker.)

To quote from the *Formulary*:

> "HISTORICAL: The first formulary of The New York Hospital was published in 1816 under the title: *Pharmacopoeia Nosocomii Neo-Eboracensis;* or, The Pharmacopoeia of the New-York Hospital. This work was published under the authority of the physicians and surgeons of the New-York Hospital, the essay being the collective works of Doctors Samuel L. Mitchell and Valentine Seaman. Thus the publication antedated the first United States Pharmacopoeia which appeared in 1820. Indeed, Doctor Seaman served as president of the first Pharmacopoeial Convention.
>
> "The needs, hence the purposes, for a 'pharmacopoeia' at the New-York Hospital were diverse, but one statement from the introduction to the first publication summarizes an important principle which has persisted in motivating revision and republication of the original work through the ensuing 135 years, whereas some of the other original purposes no longer obtain.
>
> " 'The subject has been arranged . . . to facilitate the object of the prescriber, the student and the apothecary . . . ' "
>
> . . . "The Formulary of The New York Hospital has been republished on several occasions since 1816. Later publications changed in character to meet the needs of the day. The greatest single change did not occur, however, until 1933 when, under the egis of the venerable pharmacologist, Doctor Robert A. Hatcher, then Professor of Pharmacology of Cornell University Medical College, *a formulary was published as the basis of a policy of hospital operation. The principles of this policy were planned to bring a semblance of order out of the chaos which existed then in the problem of selection of drugs for the therapeutic approach to the management of disease.* A multiplicity of agents existed, frequently of secret composition and frequently differing only in name, which were foisted on the innocent clinician and pharmacist under the guise of exaggerated claims by means of forceful sales practices. The problems of teaching and practicing sound therapeutics were not simplified by this situation; furthermore, due to the world-wide economic collapse of those days, frugality was an absolute requirement. The principles outlined by Doctor Hatcher were incorporated in the 1933 edition and were implemented by his untiring efforts, a Formulary Committee under the guidance of its chairman, Doctor Wendell J. Stainsby, intent on achieving sound therapeutic practices in the hospital, a Medical Board and Board of Governors intent on the same objective as well as an economy consistent with it and a sympathetic Hospital Administration. The principles actuated in 1933, which incidentally seem remarkably reminiscent of the problems of 1816, in essence remain the guiding influence of the present edition of The Formulary of The New York Hospital."
>
> ". . . In principle, the Formulary System, in the interests of good therapeutics, efficiency and economy, establishes a group of therapeutic agents for general use and prescribing by physicians associated officially with the hospital, the value of which has been established in the light of current medical opinion."
>
> "Rules Governing the Action of the Formulary Committee: . . . No article which is sold under a proprietary name will be admitted under such a name if a substance of identical composition can be obtained under a non-proprietary name."

Finally, let me urge you once again to stand fast by your pharmacy committee, your formulary, and your use of generic names. Your position is sound legally, ethically, and morally. You are in excellent company. Your number is increasing steadily. In the words of our late great President of The United States—"You have nothing to fear but fear itself."

As I look about this crowded room I see no one who is afraid.



INVESTIGATIONAL DRUGS——

some principles of handling

by DON E. FRANCKE

FEDERAL LAW PROHIBITS the introduction of a new drug into interstate commerce unless reports of investigations have been filed which show that the drug is *safe* for use.

Hospitals have a responsibility to their patients to see that proper procedures are established in the use of investigational drugs. Policies concerning investigational drugs must be established taking into consideration the duties, prerogatives, and responsibilities of the administrator, the physician, the nurse, and the pharmacist. In this paper, three principles of the use of investigational drugs are discussed briefly and two procedures used by hospitals in the handling of investigational drugs are presented.

Experts on Safety

Physicians who use new drugs on patients should be qualified by training and experience to investigate the *safety* of these drugs. No physician would consider himself an expert on the safety of all new drugs. Thus a physician who is an expert on the safety of one class of drugs may not qualify as an expert in the use of another class of new drugs. This emphasizes one of the important principles in the use of investigational drugs: Patient safety and welfare demands that the use of investigational drugs be limited to physicians who qualify as experts to investigate the safety of their use.

Freedom in Research

A second principle in the use of investigational drugs is that freedom of research be maintained. The hospital should be concerned with (1) patient safety, and (2) the competency of the physician in the use of the drug in question. But it should

DON E. FRANCKE, D. Sc., is Chief Pharmacist at the University Hospital and Assistant Professor of Pharmacy, College of Pharmacy, University of Michigan, Ann Arbor.

TEN COMMANDMENTS OF MEDICAL RESEARCH INVOLVING HUMANS

The great weight of the evidence before us is to the effect that certain types of medical experiments on human beings, when kept within reasonably well-defined bounds, conform to the ethics of the medical profession generally. The protagonists of the practice of human experimentation justify their views on the basis that such experiments yield results for the good of society that are unprocurable by other methods or means of study. All agree, however, that certain basic principles must be observed in order to satisfy moral, ethical and legal concepts:

1. **The voluntary consent of the human subject is absolutely essential. This means that the person involved should have legal capacity to give consent; should be so situated as to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, overreaching, or other ulterior form of constraint or coercion; and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.**

   The duty and responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs, or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.

2. **The experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary in nature.**

3. **The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study that the anticipated results will justify the performance of the experiment.**

4. **The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.**

5. **No experiment should be conducted where there is an *a priori* reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.**

6. **The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.**

7. **Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability, or death.**

8. **The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conduct or engage in the experiment.**

9. **During the course of the experiment the human subject should be at liberty to bring the experiment to an end if he has reached the physical or mental state where continuation of the experiment seems to him to be impossible.**

10. **During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill, and careful judgment required of him that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.**

From Statement of TELFORD TAYLOR[3]

---

not establish barriers to research nor should it attempt to influence the type of research being done.

Informed Nurses

One of the weaker links in the chain of precautions for patient safety in hospitals is the manner of handling investigational drugs. These drugs are obtained by the principal investigator who, with few exceptions, takes them to the hospital nursing unit where they are administered to patients by members of the nursing staff upon written orders. The drugs may be prescribed by the principal investigator or the patient's order may be written by another member of the medical staff at his request.

From this point on difficulties arise, principally due to a lack of communication. The nurse in many cases does not know what drug she is administering because it may be labeled only with

FORM A
(Reduced in size)

PHYSICIAN'S DATA SHEET ON
INVESTIGATIONAL DRUGS

1. Name of investigational drug:_____
2. Manufacturer or other source:_____
3. Strength & form of investigational drug:_____
4. Amount received: _____
5. Date received: _____
   Control or batch no.:_____
5. Pharmacologic and therapeutic properties:
6. Antidote:
7. Reason for desiring to use above drug:
8. Reference in literature or other source of information relative to clinical use of drug:
9. Arrangements which have been made for its administration:

Approved:

_____
(Investigator)

_____
(Medical Director)

_____
(Investigator)

Date:_____

a code number, and sometimes even the strength of the drug is not indicated. Neither does she know the various dosage forms in which the drug is available. This leads to confusion and greater possibility of error. But most important, the nurse is not advised of the actions, uses, precautions, and side effects of the drug and thus cannot carry out her professional function of noting the patient's response to the medication. Therefore, the patient loses this important protection and if, for any reason, he responds unfavorably to the drug, corrective measures may be delayed.

This emphasizes a third important principle in the use of investigational drugs in hospitals, namely: Nurses who administer investigational drugs must be informed concerning their dosage forms, routes of administration, actions and uses, side effects, precautions, toxicity, etc.

Role of Pharmacist

Steps may be taken through the Pharmacy and Therapeutics Committee to improve the handling of investigational drugs for greater patient safety. The hospital pharmacist in his role as permanent Secretary of the Committee is an important factor in the resolution of this and other problems relating to the use of drugs in hospitals.

The following policy and general procedure on the use of investigational drugs, adopted by the medical staff of a teaching hospital, illustrates the application of the principles already discussed. In this hospital investigational drugs, with few exceptions, are not dispensed through the Pharmacy Department.

"USE OF INVESTIGATIONAL DRUGS. The following rules regarding drugs for investigational use have been passed by the Pharmacy and Therapeutics Committee and approved by the Medical Advisory Staff. These rules were drafted to provide a central clearing place for drugs used for investigational purposes in the Hospital and to promote patient safety. It is not the intent of the Committee to pass upon or to attempt approval of drugs which are being investigated by any department. The Committee feels that any attempt to approve or to pass upon investigational drugs would tend to influence the type of research being done. This is not the function of the Pharmacy and Therapeutics Committee.

"1. Drugs for investigational use must be recorded with the Secretary of the Pharmacy and Therapeutics Committee (the Chief Pharmacist) by the investigator before they may be used in the Hospital. In recording the drug with the Committee, the investigator is requested to furnish pertinent information regarding the pharmacologic and therapeutic properties of the drugs, as well as the arrangements which have been made for its administration and control.

"2. The administration of investigational drugs by any route by members of the Nursing Staff is prohibited until such time as adequate information concerning the actions, uses, dosage, toxicity, and precautions of such drugs is available on the individual nursing units in a form approved by the Pharmacy and Therapeutics Committee.

"3. It shall be the responsibility of the Chief Investigator using the investigational drug to furnish to the Secretary of the Pharmacy and Therapeutics Committee (the Chief Pharmacist) pertinent information on the drug to be administered in the Hospital.

"4. It shall be the responsibility of the Pharmacy Department to prepare and to make available to the Nursing Department summaries of this basic information on investigational drugs."[1]

Another Example

A second example of the handling of investigational drugs is the method suggested by D'Ambola.[2] This method is employed in Hahnemann Medical College and Hospital where investigational drugs are dispensed through the Pharmacy Department.

"A request for approval of an investigational drug should be submitted to the proper authority on a *Physician's Data Sheet on Investigational Drugs* (Form 'A'), obtained from the Pharmacy.

FORM B

(Reduced in size)

NURSE'S DATA SHEET ON
INVESTIGATIONAL DRUGS

1. Name of investigational drug:_____
2. Manufacturer or other source:_____
3. Strength & form of investigational drug:_____
4. Pharmacologic and therapeutic properties._____
5. Arrangements which have been made for its administration:
6. Antidote:

Date:_____ _____
Director of Pharmacy Service

No._____

"From the information on Form 'A' the Pharmacy will prepare Form 'B', *Nurse's Data Sheet on Investigational Drugs.* Form 'B' is supplied to all wards issued the particular investigational drugs and supplies all the needed information concerning the drug to both the nursing staff as well as other personnel not familiar with it. (See Form 'B'.)

"The Pharmacy Department maintains a third form known as Form 'C' or *Pharmacist's Data Sheet on Investigational Drugs.* (See Form 'C'.) Form 'C' is a record of the issue of any particular investigational drug. This form includes the date, name of physician, patient's name, prescription number, quantity issued, and ward. This is a permanent record of the use of any particular investigational drug until such time as it is released by the Food and Drug Administration and becomes available through the normal channels.

"Issuance of investigational drugs from Pharmacy will operate in this manner:

"1. Upon approval of an investigational drug by a committee, administrator, or other hospital official, the drug is turned over to the Pharmacy Service. (Form 'A' will accompany each receipt of investigational drug from the physician.)

"2. Physician will request such drug from the Pharmacy on a prescription blank.

"3. Pharmacy will label each medication container with the following:

"A. 'Not for general use'

"B. The name and dosage of the medication. (If only a code number is assigned to the drug, then such description as 'Diuretic Drug' or 'Antispasmodic Drug' should be used in addition to the code number.) If available, the drug's chemical name should always appear on the container. The chemical name helps in determining the type of antidote to be used in case of overdose or side effects.

"C. The usual prescription label with:

(1) Date
(2) Name of patient
(3) Serial number of prescription
(4) Directions for use
(5) Name of prescribing physician.

"4. Pharmacy will issue prepared Form 'B' to each ward or nurse's station using the particular investigational drug.

"5. Pharmacy will record each issue of investigational drug on Form 'C'."

Conclusion

Hospital authorities and members of the medical, nursing, and pharmacy staffs should review and reevaluate the hospital's policies and procedures in the handling of investigational drugs. Where indicated, steps should be taken to revise these policies and procedures to assure more adequate safeguards to the patient. Reference to the basic principles formulated as a result of trials of war criminals by the Nuremberg Military Tribunal may be helpful in this undertaking.[3]

REFERENCES

1. Francke, D. E.: *Hospital Formulary of Selected Drugs,* Hamilton Press, Hamilton, Ill., 1954, p. ix.

2. D'Ambola, J. V.: The Use of Investigational Drugs in Hahnemann Medical College and Hospital, *News Letter of the Philadelphia Hospital Pharmacists' Association,* April 1957.

3. Mitscherlich, A. and Norden, H.: *Doctors of Infamy, the Story of the Nazi Medical Crimes,* Henry Schuman, New York, 1949, p. xxiii.

PHARMACIST'S DATA SHEET ON
INVESTIGATIONAL DRUGS

Investigational Drug:_____

Manufacturer:_____

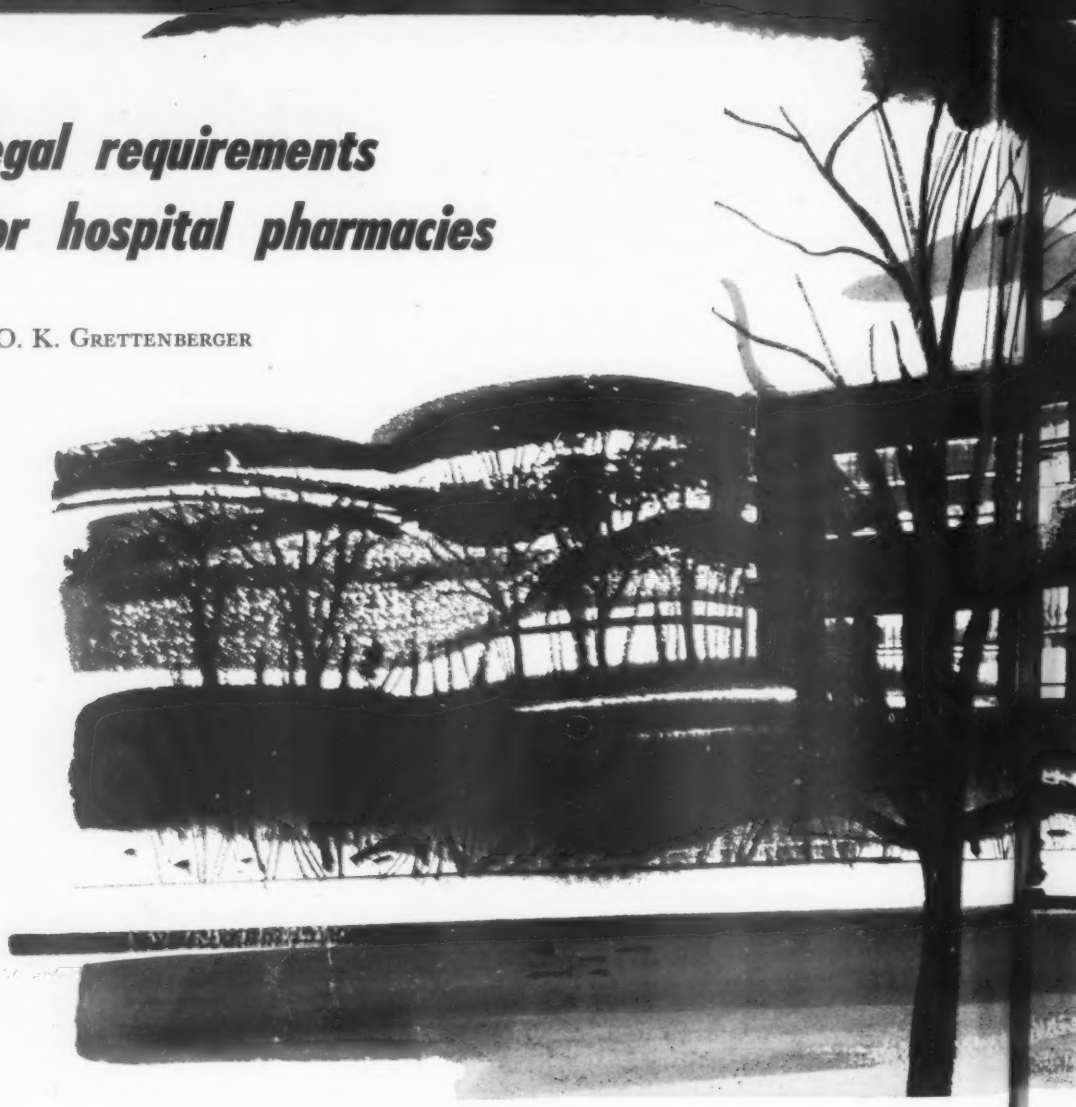
FORM C

(Reduced in size)

Date	Physician	Patient	Rx No.	Amount	Ward

legal requirements for hospital pharmacies

by O. K. GRETTENBERGER



1 **The compounding, dispensing, and control of all drugs issued in hospitals shall be under the supervision of a registered pharmacist on a full-time or part-time basis. Hospitals unable to secure such services locally from either hospital or retail pharmacists, shall consult with the Board of Pharmacy.**

2 **Hospital pharmacies shall be licensed by the Michigan Board of Pharmacy complying with Act 134, Paragraph 338.405, Section 5 of the Michigan Pharmacy Act.**

3 **The pharmacist-in-charge, with the approval of the director of the hospital, shall initiate rules, regulations, and procedures pertaining to the safe handling of drugs by hospital personnel. These rules, regulations, and procedures shall be designed to assure patient safety in the use of drugs and to assure compliance with state and federal laws concerning the handling of narcotics, barbiturates and other prescribed drugs.**

4 **Nurses may procure from the Pharmacy Department, in order to carry out physicians' orders, those drug items which have been received, compounded, labeled, dispensed, or prepared for administration by or under the supervision of the pharmacist-in-charge. These items may be procured by nurses under rules and procedures approved by the director of the hospital upon the recommendation of the pharmacist-in-charge.**

THE TOPIC LEGAL REQUIREMENTS for a hospital pharmacy dispensing drugs is one in which controversial discussion prevails. I will be brief and give to you in four paragraphs the regulations for pharmacy service in hospitals in Michigan (see opposite page); followed by some concise elaborations on the regulations.

Regulation 1 simply states that a registered pharmacist must be in charge of a hospital pharmacy.

Regulation 2 states that hospitals, under State Law, must be licensed to dispense or compound drugs. This assures to patients within the confines of a hospital the same protection in their use of drugs as the lay person has when he receives a filled prescription from a licensed drug store.

According to Regulation 3, there need not be any one specific method of procuring drugs from a hospital pharmacy as long as the rules and regulations within an individual hospital have been established by the pharmacist-in-charge, with approval of the director of the hospital. The rules, regulations, and procedures should assure that drugs are dispensed properly within the hospital and that the laws of the state and federal governments are adhered to. The pharmacist, in dispensing the drugs, should, of course, perform his duties in an ethical manner and obey the laws pertaining to him as a registered pharmacist.

Regulation 4 allows nurses to procure drugs after they have been received, compounded, and labeled or prepared for administration by the pharmacist. However, in procuring drugs from the pharmacy department, nurses must adhere to the rules, regulations and procedures which the hospital has adopted to assure patient safety in the handling of drugs, as outlined in regulation 3.

O. K. GRETTENBERGER is Director of Drugs and Drug Stores, Michigan Board of Pharmacy, Lansing 26.

SUGGESTED REGULATIONS FOR HANDLING

NARCOTICS

IN HOSPITALS

by ARTHUR W. DODDS, *Chairman ASHP Committee*

DEFINITIONS

Order and Prescribe

The written order for narcotics on the doctor's order sheet of a patient's chart or a properly prepared written prescription.

Request and Certificate of Disposition Form

The recommended combined form for obtaining nursing station narcotic drugs and for keeping an account of these narcotics as administered.

Administer

The word "administer" is employed when a *nurse* or other properly qualified individual gives medication to a patient, pursuant to the order of a qualified practitioner.

Dispense

The word "dispense" is employed when a *pharmacist* dispenses narcotics to an outpatient upon the receipt of a properly prepared narcotic prescription.

Hospital

"Hospital" means an institution for the care and treatment of the sick and injured, approved by the proper state agency as proper to be entrusted with the custody of narcotic drugs and the professional use of narcotic drugs under the direction of a physician, dentist, or veterinarian, who has qualified and obtained the requisite Federal narcotic registration from the District Director of Internal Revenue.

Doctor

The word "Doctor" is employed to indicate an individual who qualifies for the requisite Federal narcotic registration with the District Director of Internal Revenue, and who has obtained same. "Doctor" in this sense is synonymous with "Practitioner." A "Doctor" may be an intern, resident, associate or assistant resident, etc., if he fulfills requirements for and obtains the Federal narcotic registration.

MUCH HAS BEEN WRITTEN about the control of narcotics in hospitals and clinics. However, it is only in recent years that this subject has been thoroughly studied from all angles of hospital practice and *"suggested rules"* and *"control systems"* promulgated with the approval of the Bureau of Narcotics of the Treasury Department. The AMERICAN SOCIETY OF HOSPITAL PHARMACISTS undertook this task as one of its major projects several years ago. Each year its committee on Narcotic, Hypnotic, Ethyl Alcohol, Spirituous Liquors and other Control Type Medications, made substantial progress in developing the final document. Each year that the Committee has functioned, the Bureau of Narcotics has kindly weighed, evaluated and advised upon the recommendations of the Committee.

Mr. A. L. Tennyson and Mr. Carl DiBaggio of the Bureau of Narcotics were especially helpful to the Committees in their work. The ASHP Chairman of the Committee over the past five years (Mr. Vernon Trygstad, Sister Mary Etheldreda and Mr. Arthur W. Dodds) played the important key roles in developing these guide-lines.

The ASHP regulations were drawn to cover the major situations involved in the control and security of narcotics in hospitals and clinics. Obviously, much of this material can be applied to "controls" and "security"" on hypnotics and other dangerous "legend drugs." Although these ASHP regulations have the approval of the Bureau of Narcotics, this does not mean that other systems of control are necessarily "non-approved."

ARTHUR W. DODDS is Senior Pharmacist, Chief, Pharmaceutical Service, U. S. Public Health Service Hospital, Staten Island, N. Y.

ASHP Committee on Narcotic, Hypnotic, Ethyl Alcohol, Spirituous Liquors and other Control Type Medications for 1955-1956: Arthur W. Dodds, *Chairman*, Norman Baker, Betty Job Bolen, Harry Riddle, Sister Marian Flynn, Margaret C. Shea, and Francis X. Sturner.

Registration

A. Non-Government Hospitals

Non-government hospitals register in Class IV (covering narcotic administration within the hospitals) or Class V (covering exempt narcotic preparations) or Classes V, IV, and III (covering dealers and hospitals filling outpatient prescriptions).

NOTE: Registration of a hospital in Class IV or in Classes III and IV does not authorize the prescribing or ordering of narcotics for an individual patient by a doctor under the hospital's narcotic registration (registration number).

Class III, Inventory of Narcotic Drugs must be kept separate from Class IV, Inventory of Narcotic Drugs; however, both lots of narcotic drugs may be kept in the same security unit, but commingling of inventories is forbidden.

B. Government Exempt Officials

Government Officials who claim exemption under the Narcotic Act for procurement, dispensing, administration or prescribing of narcotics, in Federal, State, County, Municipality, or other governmental institutions and who qualify, usually apply for special exemption, (See "Special Exemptions" in Narcotic Regulations No. 5, Ch. VI, Art. 91, 92, and 93 and Treasury Decision No. 48, dated November 24, 1954, which amended the Ch. VI of Regulations No. 5).

NOTE: This exemption is usually a tax exemption, only, and does not exempt the officials or institution from narcotic control regulations.

C. Doctors (Practitioners)

Doctors (Practitioners), in order to prescribe narcotics for or order administered (dispensed) narcotics to their patients in the hospital, must be entitled under the laws of the particular state, territory or district to so prescribe, or order administered, narcotic drugs. Further they must be duly registered with the Federal District Director of Internal Revenue for this purpose.

NOTE: Registration in one state will not cover the activities of the Doctor in another state.

D. Interns, Residents, and Medical Officers

Interns, residents and medical officers who are attending patients in the hospital or hospital clinics, if entitled under the state, territorial or district law (Medical Practice Act) to prescribe or order administered narcotic drugs to assigned

CONTENTS

I. DEFINITIONS

II. REGISTRATION

- A. Non-Government Hospitals
- B. Government Hospitals
- C. Doctors (Practitioners)
- D. Interns, Residents, and Medical Officers
- E. Special Exemption for Doctors in Government Hospitals

III. HOSPITAL NARCOTIC CONTROL

- A. Responsibility for Narcotics in the Hospital
- B. Doctor's Signature or Initials
- C. Preparation of Narcotic Orders
- D. Doctor's Order for Administration of Narcotics
- E. Ordering Narcotic Drugs for Nursing Unit
- F. Narcotic Mixtures for Individual Hospital Patients
- G. "P.R.N." Orders
- H. "Standing Orders" for Narcotics
- I. Telephone Order for Narcotics
- J. Oral (verbal) Order for Narcotics
- K. Procedure in Case of Waste, Destruction, Contamination, etc.
- L. Procedures in Case of Loss, Theft, etc.
- M. Multiple Dose Vial Narcotic Problem
- N. Charging a Fee for Narcotics
- O. Storage of Narcotics
- P. Correspondence Concerning Interpretation of the Law and Regulations
- Q. Filled Narcotic Prescription to be Signed
- R. Records—Length of Time to Keep
- S. Narcotic Control Forms

patients in the hospital or hospital clinic, may obtain the requisite registration from the Federal District Director of Internal Revenue, to complete their qualification to write narcotic prescriptions or order narcotics administered to their hospital patients in the course of their professional practice.

NOTES: Usually the State, Territorial or District Medical Practice Act sets forth the prerequisites required to obtain the professional right to prescribe or order narcotic drugs. The licensed doctor, dentist or veterinarian, in good standing, has this right in the respective state, territory or district where he is licensed; there may be a question as to whether an intern, resident, or medical officer has such a right, even as limited to hospital patients, unless the medical practice act or a special law authoritatively construed, gives the non-licensed doctor such a right limited to his hospital patients. If it is authoritatively determined that the intern, resident, or medical officer has such limited rights under the state, territorial or district law, he may complete his qualification by registration with the District Director of Internal Revenue under the Federal Narcotic Law.

The Bureau of Narcotics has clearly stated that it is not the intent of Article 28, Regulation No. 5, pertaining to employees of registrants to authorize the prescribing or the ordering of narcotics by unregistered practitioners as employees of an institution holding a Class III or IV registration.

E. Special Exemption for Doctors in Government Hospitals

Certain government officials may be exempt from paying a narcotic registration tax such as doctors in the Armed Forces, USPHS and Civil Service (see "Special Exemptions" in Narcotic Regulations No. 5, Ch. VI, and Treasury Decision No. 48, dated November 24, 1954 which amended the Ch. VI of Regulations No. 5).

NOTE: "Exempt" officials are primarily exempt from paying tax. All other narcotic regulations apply unless specifically exempt.

Hospital Narcotic Control Procedures

A. Responsibility for Narcotics in the Hospital

The administrative head of the registered hospital is responsible for the proper safeguarding and handling of narcotics within the hospital. Responsibility for the purchase, storage, accountability and proper dispensing of narcotics within the hospital is normally delegated to the pharmacist, serving as the hospital's narcotic security officer, or to a registered nurse, or administrator, or superintendent in the smaller hospitals. Likewise, the Head Nurse of a nursing unit or designatees, are responsible for the proper storage and use of nursing unit's narcotics. While such delegation of authority is proper, the administrative head of the institution is not relieved of his supervisory responsibility to detect and correct any diversion or mishandling of narcotics by pharmacists, doctors, nurses, or other employees. Necessary periodic spotchecks should be made by the administrator and others to assure compliance with requirements.

B. Doctor's Signature or Initials

The doctor's full name or initials are required on the doctor's order sheet. The doctor's narcotic registry number need not be included with the signature on the doctor's order sheet.

C. Preparation of Narcotic Orders

All narcotic orders and records must be typed or written in ink or indelible pencil and signed in ink or indelible pencil.

D. Doctor's Order for Administration of Narcotics

The doctor's order for the administration of narcotics is usually written on the doctor's order sheet of the patient's chart. However, if a complete narcotic prescription is written on a prescription blank instead of on the doctor's order sheet, the signed prescription is to be sent to the pharmacy with a narcotic "Requisition and Certificate of Disposition" Form signed by the nurse. A notation is to be made on the patient's chart that the doctor's signature for the order is in the Pharmacy. (See "Ordering Narcotic Drugs for the Nursing Unit" and "Narcotic Mixtures for Individual Hospital Patients" for further details).

E. Ordering Narcotic Drugs for Nursing Unit

Narcotic drugs, whether intended for permanent or temporary nursing stock, should be ordered from the pharmacy on the narcotic "Requisition and Certificate of Disposition" form.

NOTE: It is not necessary that this request be signed by a duly registered doctor. However, it should be realized the signing by a doctor of such a request for narcotics for the nursing unit stock does not relieve the nurse of her responsibility of having a properly signed order for each dose of narcotic administered and for charting the information on the "Certificate of Disposition" or for the proper security storage of the narcotics obtained.

F. Narcotic Mixtures for Individual Hospital Patients

A properly signed narcotic order for an individual hospital inpatient, whether it be a single narcotic item or a narcotic mixture, may be ord-

(PART I)

REQUISITION FOR NARCOTICS AND HYPNOTICS

DRUG	STRENGTH	QUANTITY	REQ. NO.

FORM (Specify) ☐ TABLET ☐ INJECTION ☐ LIQUID ☐ OTHER

SIGNATURE AND TITLE OF REQUISITIONER

NURSING UNIT	RECEIVED BY (Signature and title)	DATE

☐ CHECK HERE IF THIS REQUISITION IS FOR A NEW (NOT CURRENTLY STOCKED) ITEM.

(PART II)

CERTIFICATE OF DISPOSITION FOR NARCOTICS AND HYPNOTICS

THE FOLLOWING IS AN ACCURATE RECORD OF THE USE OF: DATE

DRUG	STRENGTH	QUANTITY	CERT. NO.

FORM (Specify) ☐ TABLET ☐ INJECTION ☐ LIQUID ☐ OTHER

NURSING UNIT

RECEIVED BY (Signature of Nurse)

RECORD LOSSES IN DETAIL UNDER REMARKS. INCLUDE NAME OF INDIVIDUAL RESPONSIBLE.

DATE	HOUR	NAME OF PATIENT	DOSE	ORDERED BY	ADMINISTERED BY	BALANCE IN UNITS or ml.

COMPLETED FORM CHECKED ON UNIT BY (NURSE)	DATE	COMPLETED FORM RECEIVED BY (PHARM.)	DATE

(PART III)

RECEIPT FOR COMPLETED CERTIFICATE OF DISPOSITION

DATE

DRUG	STRENGTH	QUANTITY	RECEIPT NO.

FORM (Specify) ☐ TABLET ☐ INJECTION ☐ LIQUID ☐ OTHER

NURSING UNIT

FORM AND CONTAINER RECEIVED BY (PHARMACIST)

PHARMACIST WILL DETACH RECEIPT AFTER SIGNATURE AND ACCEPTANCE OF COMPLETED CERTIFICATE OF DISPOSITION AND EMPTY CONTAINER.

ered from the pharmacy in the manner outlined above, on a narcotic "Requisition and Certificate of Disposition" form. If it is a narcotic mixture (prescription) which is prepared for the patient, a copied transcription from the doctor's order sheet may be prepared by the responsible nurse, one copy of which must be attached to a narcotic "Request and Certificate of Disposition" form. The transcription will contain the doctor's name but not necessarily his signature, the name of the patient, date of narcotic order, the complete formula (prescription) including signa (directions), and the signature of the nurse preparing the request. The filled prescription, that is, the medication, returned to the nursing unit with the "Certificate of Disposition" portion of the form, is treated in the same manner as other narcotic nursing unit preparations.

NOTES: It is emphasized by the Bureau of Narcotics that a narcotic "Certificate of Disposition" report is to be maintained showing a record of each dose of a narcotic administered on a nursing unit, whether from the nursing unit stock or pursuant to a copied prescription which is filled in the pharmacy and returned to the nursing unit for an individual patient.

The completed "Certificate of Disposition" is returned to the pharmacy with the container when empty or when medication is discontinued. Any remaining medication is placed on inventory in the pharmacy until used for another patient or until returned to the Narcotic District Supervisor on Form 142 as directed in Regulations No. 5, Art. 196.

Should the attending doctor wish to have the patient continue the medication at home until the original prescription becomes exhausted, the doctor should enter the necessary instructions on the doctor's order sheet. The container with the narcotic, the completed "Certificate of Disposition" form, and a request by the nurse to dispense the remainder of the drug with proper signa, is sent to the pharmacy. The pharmacist will relabel if necessary and make an appropriate notation on the "Certificate of Disposition" as to the disposition of the remainder of the prescription.

G. "P.R.N." Orders

A "P.R.N" order for a narcotic is permissable but such an order is not valid beyond 72 hours, regardless of type of case treated i.e. terminal, cancer, or how the order is written. "P.R.N." orders must be re-written at least every 72 hours.

H. "Standing Orders" for Narcotics

"Standing Order" for a drug, is understood to be a drug dose administered routinely for a doctor by a nurse, (Example: preoperative medication), without first obtaining a signed order for each hospital patient. This type of order is not permissable for narcotic drugs.

I. Telephone Order for Narcotics

A doctor may order a narcotic drug or compound for his hospitalized patient by telephone

PERPETUAL INVENTORY OF NARCOTICS, HYPNOTICS, WINE OR SPIRITUOUS LIQUORS (Pharmacy)

DATE	QUANTITY RECEIVED OR COMPOUNDED	QUANTITY ISSUED ON R_x OR REQUISITION	R_x NO. OR REQUISITION NO.	DATE CERTIFICATE OF DISPOSITION RET'D TO PHARMACY	NURSING UNIT WARD, OR CLINIC RECEIVING	AMOUNT DISPENSED IN COMPOUNDING OPERATION	DISPENSED OR USED BY	BALANCE ON HAND

in case of absolute necessity. The nurse will write the order on the doctor's order sheet, stating that it is a "telephone order" and sign the doctor's name and her initials. The narcotic may be administered immediately. The written order must be signed by the doctor with either his full name or initials within 24 hours.

J. Oral (Verbal) Order for Narcotics

An oral (verbal) narcotic order may be given by a doctor for his hospital patient only in a bona fide emergency where time does not permit his writing the order. The nurse will write such an order on the doctor's order sheet, stating that it is an emergency oral order, giving the doctor's name and signing her initials. This written order must be signed by the doctor with his full name or initials before he leaves the hospital or within 24 hours.

NOTE: Telephone and oral narcotic orders are approved with reluctance by the Narcotic Bureau. The Bureau has made a major concession to hospitals on these two points recognizing that unusual true emergency situations arise in hospitals, situations which are not common in other types of medical practice. It cannot be emphasized too strongly that telephone and oral narcotic orders are to be used only in true emergencies. Periodic checks should be made to determine whether there is abuse of these two emergency types of narcotic orders.

K. Procedure in Case of Waste, Destruction, Contamination, etc.

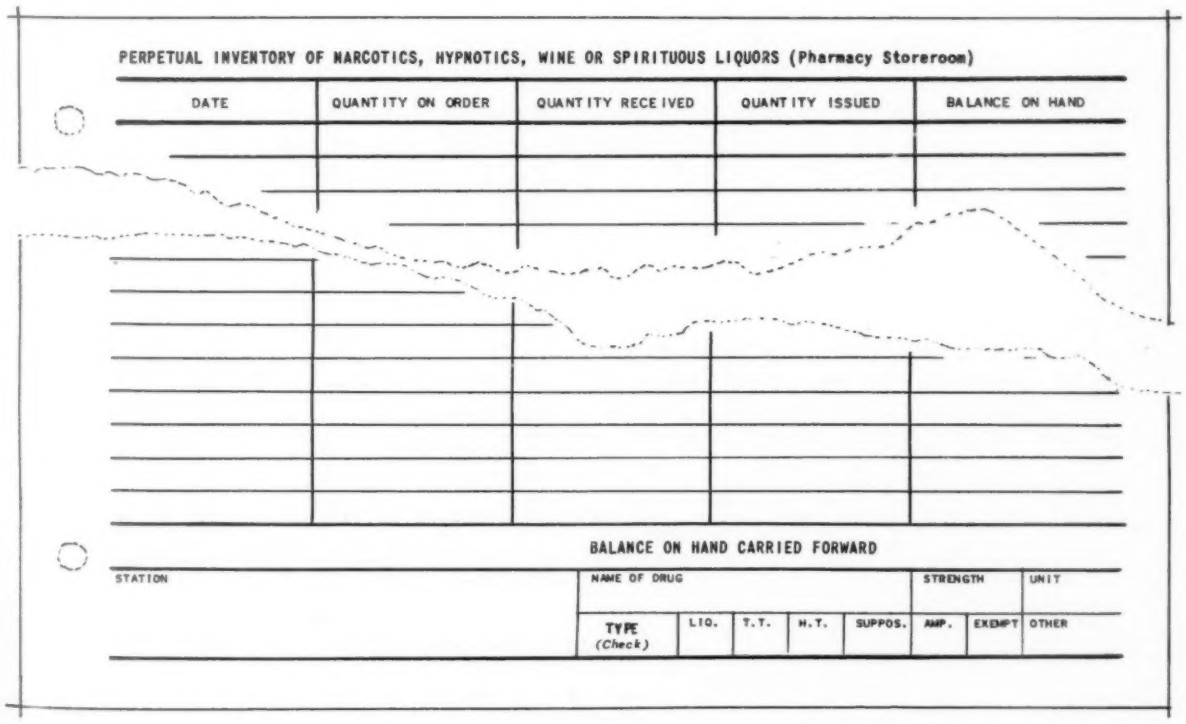
1. Aliquot Part of Narcotic Solutions Used for Dose: The nurse shall use the proper number of tablets or ampuls from nursing unit stock. She shall record the number of tablets or ampuls used and the dose given in the proper columns on the Narcotic "Certificate of Disposition" form.

2. Prepared Dose Refused by Patient or Cancelled by Doctor: When a narcotic dose has been prepared for a patient but not used, due to a refusal by the patient or because of cancellation by the doctor, the nurse shall expel the solution in the sink and record on the back of the Narcotic Certificate of Disposition the reason why the narcotic was not administered.

EXAMPLES Discarded: Refused by patient, or order cancelled by Dr. A. Jones.

The head nurse of the unit shall sign the statement and the Director of Nurses or her assistant countersign it.

3. Accidental Destruction of Narcotics: When a narcotic solution, tablet, ampul or substance is accidentally destroyed on a Nursing Unit, the person responsible shall indicate the accidental loss by a check in the space or spaces allowed for the record on the Narcotic Certificate of Disposition of that narcotic. She shall write on the back of the sheet a complete report of the accident and



PERPETUAL INVENTORY OF NARCOTICS, HYPNOTICS, WINE OR SPIRITUOUS LIQUORS (Pharmacy Storeroom)

DATE	QUANTITY ON ORDER	QUANTITY RECEIVED	QUANTITY ISSUED	BALANCE ON HAND

BALANCE ON HAND CARRIED FORWARD

STATION	NAME OF DRUG					STRENGTH		UNIT
	TYPE (Check)	LIQ.	T.T.	H.T.	SUPPOS.	AMP.	EXEMPT	OTHER

sign the statement. The head nurse of the Unit will sign the statement when complete. The Director of Nurses or her assistant will then also sign the statement.

4. Contaminated or Broken Hypodermic Tablets and Contaminated Narcotic Solutions: When a narcotic hypodermic tablet is contaminated or broken or a narcotic solution is contaminated, the person responsible or the head nurse shall place the tablets, particles, or solution in a suitable container and label. The person responsible or the head nurse shall indicate the contaminated narcotic by check in the space or spaces allowed for the record on the Narcotic Certificate of Disposition of that narcotic. She shall write on the back of the sheet a complete report of the accident and sign the statement. The head nurse shall sign the statement when complete. The Director of Nurses or her assistant shall then sign the statement. The container with the contaminated narcotic shall be returned to the pharmacy. The pharmacist or other authorized person will receive it and note on the Narcotic Certificate of Disposition covering that particular narcotic that it has been returned. The hospital shall return the material either by itself or with similar narcotic material at a convenient time, to the Narcotic Bureau in the proper manner.

NOTE: In using the above procedures, the Head Nurse should sign entries as a witness or as a responsible individual who has investigated the incident. In addition, a professionally responsible supervisory official should initial the entries to assure an awareness on the part of supervisory professional personnel of all matters relating to narcotics.

L. Procedures in Case of Loss, Theft, etc.

1. Discrepancies in narcotic count involving small amounts (such as single doses), should be reported to a responsible supervisory official of the hospital. An investigation should be made to determine the cause of the loss. A copy of the report of investigation signed by the responsible supervisory official should be filed with the hospital narcotic records, and appropriate action taken to prevent recurrence.

2. In cases of recurring shortages, or loss of significant quantities of narcotics (several doses), a thorough investigation should be made, making every effort to determine the reason for the shortage, and the person responsible with complete report of the incident and findings made to the Administrative Authority of the hospital. Appropriate action should be taken immediately to prevent recurrence. A copy of the report, including any findings resulting from the local investigation, should be forwarded to the District Supervisor

EIGHT (8) HOUR NURSE AUDIT RECORD

(Losses and Extended Disposition Record should also be noted. Attach another Form (PHS-2621-2) should more space be needed)

DATE	TIME	SIGNATURE ON-COMING NURSE	INITIALS OFF-GOING NURSE	DATE	TIME	SIGNATURE ON-COMING NURSE	INITIALS OFF-GOING NURSE	DATE	TIME	SIGNATURE ON-COMING NURSE	INITIALS OFF-GOING NURSE

of the Bureau of Narcotics in accordance with Article 194, Bureau of Narcotics Regulation No. 5.

M. Multiple Dose Vial Narcotic Problem

The Bureau of Narcotics questions the advisability or the necessity for approving a specific amount of overage or a permissable shortage for narcotic vial medication, fearing it would foster deviation. Currently there is no definite answer to this problem except the test of reasonableness.

N. Charging a Fee for Narcotics

A hospital may charge for narcotics administered or dispensed to patients.

O. Storage of Narcotics

Narcotics must be kept in a locked secure place. Reserve stocks should be kept in a strong safe, substantial enough to deter entry and heavy enough to prevent its being carried away. Other valuable property may be kept in the safe. A chest or safe meeting Underwriters Laboratories requirements for an X-60 rating is designed to offer protection against attack by tools or explosives for a period of one hour; one with a TR-60 rating protects against tools or torch and one with a TX-60 rating protects against tools, torch, or explosives, for the same period of time. A safe with any of these ratings, or of equivalent construction, is considered "a strong safe."

For small stocks, the Bureau of Narcotics has occasionally, though reluctantly, accepted lighter safes with only a T-20 rating. This type of safe is built to resist attack by ordinary burglar's tools only, and only for a period of twenty minutes. While better than no safe at all, it offers a bare minimum of protection. Although sometimes insisted upon as a minimum requirement, it is never recommended as adequate and certainly is not adequate for safe-keeping of a narcotic stock of any appreciable size or value.

Any safe weighing less than 750 pounds should be securely anchored in concrete to the floor or wall to prevent its being carried away. If bolts are used they should be completely imbedded so they cannot be readily reached and cut, sawed or unbolted (see Gen. Cir. 195—Bureau of Narcotics).

P. Correspondence Concerning Interpretation of the Law and Regulations

Correspondence concerning interpretation of the law and regulations as they apply to hospitals should not be directed to a field office, but should be directed to the Division of Hospital Pharmacy, 2215 Constitution Avenue, Washington, D. C. Questions of violations of the law and regulations should be directed to the local District Supervisor of the Bureau of Narcotics.

Q. Filled Narcotic Prescription to be Signed

The narcotic prescription, at the time of filling, is to be signed and dated by the pharmacist with his legal signature on the face of the completed prescription.

R. Records - Length of Time to Keep

The Federal Law requires that all records pertaining to narcotics be preserved for a period of at least two (2) years. Requirements of the several states may vary.

S. Narcotic Control Forms

The AMERICAN SOCIETY OF HOSPITAL PHARMACIST'S 1950 Committee on Narcotic Regulations developed suitable narcotic forms to show daily use of narcotics and the amount remaining on inventory. The following year the Narcotic Bureau sanctioned the use of these forms though not excluding others.

In light of the experience gained during the past several years these forms have again been carefully reviewed. Changes in the previously approved forms, as incorporated in the Exhibits shown here, will make for even better functional use and are recommended for adoption.

The forms are:

1. A combined form consisting of four parts:
   a. Request for Narcotics
   b. Certificate of Disposition
   c. Receipt of Certificate of Disposition
   d. Eight Hour Nurses' Audit
2. Perpetual Inventory of Active Narcotics
3. Perpetual Inventory of Reserve Narcotics

The Bureau of Narcotics encourages hospitals without a pharmacist to follow regulatory procedures presented here as well as the use of the forms. Should any forms seem unnecessary in a particular operation, it is recommended that the administrator submit his present procedure to the Commissioner of Narcotics in Washington for comment.

The forms illustrated are self explanatory. It should be emphasized that in addition to keeping a record of narcotics administered, hospitals must maintain a perpetual inventory of narcotics and a record of nursing station audits made at each change in shift of nurses.

A scene at the ASHP House of Delegates meeting on Sunday, April 29 prior to the General Sessions on Monday and Tuesday.

Among the more than 300 hospital pharmacists attending the Society's Fifteenth Annual Meeting were sixty delegates representing forty of the forty-seven affiliated chapters. Other members of the House of Delegates include the members of the Executive Committee and the Chairmen of the Special Committees.

ABOVE: *Mr. J. Warren Lansdowne, Chairman of the A.Ph.A.'s Committee on Public Relations, presents 1956 awards for National Pharmacy Week Displays.*

BELOW: *A scene at the 1957 H.A.K. Whitney Award Dinner. Sister Mary John, the recipient, is seated second from the right.*

Dr. August Groeschel, Associate Director for Professional Services, The New York Hospital, New York City and Mr. M. R. Kneifl, Executive Secretary of the Catholic Hospital Association, St. Louis, meet at ASHP Annual Meeting.

NEW YORK CONVENTION

More than 300 hospital pharmacists participated in the 1957 Annual Meeting of the American Society of Hospital Pharmacists held in conjunction with the Convention of the American Pharmaceutical Association in New York City, April 29, 30, and 31. This was probably the largest number ever to attend an Annual Society meeting. This marked the fifteenth year since organization of the ASHP and progress was noted in many areas of activity. Of particular note was the strength of the Society backed by more than 2,500 members and 47 affiliated chapters scattered throughout the country. Reports of the officers and committee chairmen and papers presented at the Annual Meeting further substantiated continued progress in hospital pharmacy. A full report of the proceedings of the meeting will appear in the July-August issue of The Bulletin.

Local Hospital Pharmacists Contribute

With Miss Anna Grosso, Chief Pharmacist at the Presbyterian Hospital, New York City, serving as Chairman of the Local Committee of Hospital Pharmacists, members of the ASHP were offered every opportunity for entertainment and hospitality along with carrying out the business of the Society. Opening this phase of the program, hospital pharmacists were entertained with a social hour on Sunday evening following the meeting of the House of Delegates. The local committee was also in charge of plans for the H.A.K. Whitney Award Dinner held on Monday night which was an outstanding event.

Special events for the Sister pharmacists were also arranged including a luncheon at the Waldorf-Astoria Hotel and tours of hospital pharmacies in the New York area.

Hospital pharmacists attending the Annual Meeting in New York City expressed great appreciation for the excellent program arrangements, facilities and many courtesies extended to the Society throughout the Convention week.

General Sessions

Perhaps of particular note to all hospital pharmacists were the discussions on alleged substitution in hospitals and the reaction of the membership to the National Pharmaceutical Council's announcement that it intends to direct efforts against so-called "substitution" in hospitals. Dr. August Groeschel, Associate Director for Professional Services at the New York Hospital, New York City, in responding to the NPC's program, encouraged hospital pharmacists to stand fast in support of their medical staff, its Pharmacy and Therapeutics Committee, hospital formularies, their policy of rational drug therapy and use of generic names. He further indicated that hospital and medical organizations expressed their approval of these principals by active participation in the inspection and the evaluation of hospitals through the Joint Commission on Accreditation. The full text of Dr. Groeschel's paper begins on page 306 of this issue of The Bulletin.

Also, in President Parker's address, he called hospital pharmacists' attention to the actions of the National Pharmaceutical Council and, as a result of deliberations, representatives of the NPC met with the Executive Committee of the ASHP prior to the Convention. As a result of this meeting, a committee of hospital pharmacists has been appointed to meet with representatives of the NPC at an early date. A resolution passed by the members in session at the Annual Meeting requested that the Executive Committee keep the ASHP membership informed regarding meetings with the NPC.

President Paul Parker congratulates the President-Elect, Leo F. Godley.

Other actions taken by the SOCIETY at the 1957 Annual Meeting included: accepted a proposed revision of the Minimum Standard for Pharmacy Internships in Hospitals; proposed that the ASHP request the Division of Hospital Pharmacy to establish and conduct a public relations program for hospital pharmacy; called for a special committee on professional liability insurance; asked that the SOCIETY review, revise, and approve "The Outline for Teaching Students in Hospital Administration;" and asked that the SOCIETY make information on accidental poisoning available to the affiliated chapters and, upon request, to interested individuals.

Reports by the standing and special committees, as well as the officers of the SOCIETY, indicated continued expansion of activities during the past year. Membership in the SOCIETY was reported at approximately 2,500.

House Of Delegates

The meeting of the ASHP House of Delegates was attended by sixty delegates representing forty of the SOCIETY's forty-seven Affiliated Chapters. The delegates were provided with written reports summarizing all ASHP activities during the past year so that they could report back to the Affiliated Chapters. Also, in the meantime the delegates and secretaries of affiliated chapters have been provided with a copy of the resolutions and action taken on resolutions passed at the 1957 Annual Meeting.

In the President-Elect's Address, presented at the meeting of the House of Delegates on Sunday, Mr. Godley announced plans for the coming year and named Committee Chairmen. He urged participation in SOCIETY affairs by all members and affiliated chapters. Other presentations at the Sunday session included reports on the American Formulary Service and the Audit of Pharmaceutical Service in Hospitals.

Debate

Another highlight of the Annual Meeting was the debate which was held jointly with the American Association of Colleges of Pharmacy. Speakers representing the AACP took the affirmative side while representatives of the SOCIETY took the negative side in debating the following Resolution:

"Resolved, that training in hospital pharmacy, not complemented with or accompanied by further academic training, is not in the best interest of the future developments of hospital pharmacy and the profession."

Hospital pharmacists, George F. Archambault and Don E. Francke, contended that there is a need for both the academic and the non-academic type of internship programs. It was pointed out that training for hospital pharmacy should be in the hands of practitioners and academic work does not necessarily have to be provided along with further training. On the other hand, the educators, Linwood F. Tice and Louis Zopf, pointed out that training in hospital pharmacy should be combined with academic work because hospital pharmacy practice is a speciality which demands additional college work.

A number of other outstanding papers on sub-

ASHP Officers for the 1957-1958 term: Left to right: Vice President Charles Barnett, Treasurer Sister Mary Berenice, President Leo F. Godley, and Secretary Gloria Francke.

Dean Linwood Tice presents the educators' point of view during the debate.

jects of particular interest to hospital pharmacists were presented at the Annual Meeting. It is anticipated that most of the papers will appear in forthcoming issues of THE BULLETIN. Of particular note were the speakers from allied groups who participated in our meeting, including Dr. Glenn Sonnedecker, Secretary of the American Institute of the History of Pharmacy; Mr. M. R. Kneifl, Executive Secretary of the Catholic Hospital Association; and Mr. Joseph Oddis, Staff Representative of the Council on Professional Practice of the American Hospital Association.

H.A.K. Whitney Award

Another highlight of the Convention was the dinner honoring Sister Mary John, 1957 H.A.K. Whitney Award Lecturer. The meeting was presided over by Paul Parker, President of the ASHP, with Mr. I. Thomas Reamer, a past-president, serving as Toastmaster. Greetings and tributes to Sister Mary John were presented by Mr. Harvey A. K. Whitney in whose honor the award was established; Mr. Joseph Oddis representing the American Hospital Association; Mr. M. R. Kneifl representing the Catholic Hospital Association; and Miss Anna Grosso, Chairman of the Local Committee of Hospital Pharmacists for the 1957 Annual Meeting. The Award which is made annually by the Michigan Society of Hospital Pharmacists, was presented by Mr. Donald Melcher, President of the Michigan Society. The Invocation and the Benediction were presented by the Reverend Patrick J. Frawley, Director, Division of Health in Hospitals, Catholic Charities, New York City.

In Sister Mary John's paper entitled "Hospital Pharmacy—Past, Present and Future," she reviewed her experiences in hospital pharmacy practice and urged hospital pharmacists to view their role as a service to the patient and all hospital departments. Sister Mary John has been Chief Pharmacist at Mercy Hospital in Toledo, Ohio for seventeen years.

New Officers and Nominees

Mr. Leo F. Godley, Chief Pharmacist at Bronson Methodist Hospital in Kalamazoo, Michigan, was installed as President of the SOCIETY for the 1957-1958 term. Mr. Godley, a charter member of the ASHP, has had long experience in the SOCIETY, having served as Secretary and a member of the Executive Committee. Mr. Charles Barnett, Chief Pharmacist at St. Luke's Hospital in Jacksonville, Florida, was installed as Vice-President. Other members who will serve on the Executive Committee for the current year are listed on page 230 of this issue of THE BULLETIN.

Nominations for officers of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS for the 1958-1959 term are as follows: *For President*: Robert Bogash, Lenox Hill Hospital, New York, New York and Milton W. Skolaut, National Institutes of Health, Bethesda, Maryland.

For Vice-President: Norman Baker, The New York Hospital, New York, New York and Clifton J. Latiolais, University Hospital, Ann Arbor, Michigan.

Ballots for the election of officers will be mailed to all *active* members of the SOCIETY sometime during June.

therapeutic TRENDS

edited by WILLIAM JOHNSON

Penthienate as a Mydriatic

An increasing number of synthetic antispasmodic agents are being produced, mainly for use in spastic disorders of the gastrointestinal tract. These agents have many of the actions of atropine and as such may be of value as mydriatics. In *Lancet* 1:601 (Mar. 23) 1957, Joseph and Sorsby indicate that of eight such agents investigated, penthienate is the most promising as a mydriatic agent. Penthienate was the only agent investigated in a clinical trial on 50 patients which gave adequate and persistent mydriasis. In 18 cases of sensitivity to atropine and 19 cases of different inflammations of the eye, penthienate bromide, as drops or as subconjunctival injections, was as effective as atropine. As drops it was used in 2 percent solution—the greatest concentration permissible consistent with systemic dosage. As subconjunctival injections it was given in doses of 2 mg. in 0.5 ml. of water with 3 minims of Adrenalin 1:1,000 added.

Compound 22451—An Ultrashort Acting Barbiturate

Compound 22451 is a stereoisomeric mixture of *alpha* and *beta dl,* 1-methyl-5-allyl-5-(1-methyl-2-pentynyl) barbituric acid sodium salt. Compound 22451 is a white crystalline solid, rapidly and easily soluble in water. It is stable in aqueous solutions at room temperatures for at least six weeks. The *p*H of such solutions, as with other barbiturate salts, is between 10 and 11. In rats, rabbits, dogs, and monkeys, compound 22451 is more potent and has a shorter duration of action than thiopental or thioseconal. It shows less cumulative action and after prolonged anesthesia recovery time was much more rapid with this agent than with either of these thiobarbiturates. The rapid deactivation is dependent, in part, upon liver function.

Gruber *et al* report in *Anesth.* 18:50 (Jan.-Feb.) 1957 that compound 22451 may be safely used as an intravenous anesthetic agent by rapid administration of a single dose, by intermittent administration of successive doses, or by continuous administration of a dilute solution. Shivering, twitching, and hiccups were more frequently observed with 22451 than with the thiobarbiturates but these symptoms are not sufficiently severe to be alarming. Investigation of the isomers of Compound 22451 is continuing.

Sominex Intoxication

Sominex is a drug available on the market without prescription, widely advertised and commonly used as "an aid to sleep." It is a combination of scopolamine aminoxide hydrobromide 0.25 mg., methapyrilene hydrochloride, 25 mg., and salicylamide 200 mg. In *Ohio State M. J.* 53:179 (Feb.) 1957, May and Voegele report of a case of intoxication with transient toxic delerium with paranoid psychotic ideation following the ingestion of 35 tablets of Sominex. The patient recovered completely under conservative treatment. Since a prescription is not necessary, Sominex is widely used and similar reactions in other cases may possibly be expected.

Phenaglycodol—An Antiepileptic Agent

Phenaglycodol, 2-*p*-chlorophenyl-3-methyl-2,3-butanediol, lacks the structural characteristics which have been associated with anticonvulsant activity. In comparison with phenobarbital, larger doses are required; however, larger doses are also tolerated by humans without excessive central nervous system depression. Comparable doses can therefore be given. In *Proc. S. Exp. Biol. Med.* 94:384 (Feb.) 1957, Gruber and Mosier report the results of a study in which twelve patients with focal brain damage and epilepsy received identically appearing experimental medications. It was concluded that phenaglycodol is an effective anticonvulsant in epilepsy associated with focal brain damage. The phenaglycodol used in this study was supplied as Ultran (Lilly).

Anileridine—An Analgesic

Anileridine, ethyl-1-(4-aminophenethyl)-4-phenylisonipecotate, differs chemically from meperidine in that the N-methyl group of meperidine is replaced by N-(p-aminophenethyl). Anileridine

is a potent analgesic with high oral activity and relatively mild side reactions. In animals the compound approaches the analgesic potency of morphine and is ten to twelve times more potent than meperidine. In dogs it is equally effective when given orally or subcutaneously. Anileridine has rapid onset of action; long duration of analgesia; is a good antitussive agent; and has mild anticholinergic and antihistaminic properties. It does not produce signs of vomiting, nausea, or constipation. The side reactions of the drug are considerably milder than those produced by morphine and somewhat milder than those of meperidine. Studies of the toxicological properties of anileridine show that it is well tolerated by mice, rats, rabbits, cats, and dogs, either in single doses or on repeated administration. The results of this study by Orohovats *et al* were published in *J. Pharmacol. & Exptl. Therap.* 119:26 (Jan.) 1957.

PABC—A Hypotensive Agent

PABC [8-(para-aminobenzyl)-caffeine] is the subject of a pharmacologic study by Burgison *et al* as reported in *J. Pharmacol. & Exptl. Therap.* 119:107 (Jan.) 1957. It has been established that PABC elicits a pronounced depressor effect. It does not decrease renal blood flow or cause toxic alterations at therapeutic dosage levels. Studies indicate that part or all of the activity of PABC resides in its inherent capacity to reduce the tonus of the systemic blood vessels. Clinical studies with PABC are currently in progress.

Meprobamate Addiction

Two case reports are submitted by Phillips *et al* in *Northwest Med.* 56:453 (Apr.) 1957 which indicate two instances of meprobamate addiction. In both cases, toxic and withdrawal symptoms were observed. The majority of patients for whom meprobamate is prescribed have a history of a varying number of years of nervous, vaso-motor psychosomatic instability or a combination of these symptoms. It is also in this group that patients show addictive trends and are undependable in regulating their own medication. These authors believe that meprobamate medication should be carefully supervised and that the physician should be aware of the possibility of withdrawal symptoms when heavy meprobamate medication is suddenly withdrawn.

Compound 20025—A Bronchodilator

Compound 20025 is 1-o-chlorophenyl-2-isopropyl-aminoethanol hydrochloride. The report of Johnston and Shipley in *Am. J. Med. Sci.* 233:303 (Mar.) 1957 deals with preliminary observations on the effects of Compound 20025 in patients exhibiting evidence of bronchospasm. Compound 20025 was studied clinically in 30 patients and found to be a potent, orally active agent which is effective in relieving and preventing asthmatic attacks in patients with clinically severe asthma. Pulmonary studies including vital capacity and maximum expiratory flow rate have shown the drug to be a potent bronchodilator. It is relatively nontoxic, and the only side effect observed has been that of central nervous system stimulation which could be effectively eliminated or diminished by combining 20025 with an equal amount of Amytal.

Zinc Methyl-Albumin Insulin—A Long Acting Insulin

Zinc Methyl-Albumin Insulin (ZMAI) is an insulin bound to zinc and non-antigenic human albumin rendered alkaline by methylation. Skensved reports in *Acta Endocrinol.* 24:159 (Feb) 1957, on the use of ZMAI in a series of 22 patients. These patients ranged in age from 17 to 75 years. Charts and tables of clinical results are presented showing results of this study. Out of 22 patients tested with ZMAI, 20 were discharged from the hospital on this preparation. One patient abandoned its use subsequently and the other 19 are still being controlled on ZMAI. On the basis of the present findings it seems justified to conclude that ZMAI is in advance of other insulin preparations with regard to the manner in which its depot effect is achieved, i.e. by using human albumin. Moreover, its clinical effect in controlling diabetes might be said to be equally as good as that of other long acting insulins, and in this series often better and seldom poorer.

Heparin—In Lipemia-Induced Angina Pectoris

Fifteen attacks of angina pectoris were induced in seven selected patients from five to five and one-half hours after fat ingestion. Intravenous injections of heparin sodium promptly relieved the anginal pain on 14 occasions. Definite improvement of the ballistocardiogram, electrocardiogram, and pneumogram was observed from 5 to 15 minutes after intravenous injection of heparin. Glyceryl trinitrate is also effective in controlling the lipemia-induced angina pectoris, but the anginal pain may recur 30 minutes after its administration. Administration of heparin at the height of postabortive lipemia resulted in a rapid reduction of the plasma neutral fat content and a decrease in the number of circulating chylomicrons. The results of this study are published in *J. Am. Med. Assoc.* 163:727 (March 2) 1957 by Kuo and Joyner.

timely drugs

Achrocort Cream

. . . a topical preparation combining the broad-spectrum antibiotic Achromycin (tetracycline, Lederle) with hydrocortisone, has been placed on the market by Lederle Laboratories. Indications for this cream include the treatment of superficial infections of the skin, prevention of infections in wounds, abrasions and after surgery. A wide range of gram-positive and gram-negative organisms which cause skin infections are known to respond to tetracycline therapy. The addition of hydrocortisone reduces inflammation and aids in the healing of affected tissues. Achrocort cream is also useful in allergic and contact dermatitis, food and infantile eczema, and other skin disorders where anti-inflammatory action and prevention of infection are desired.

Each gram of Achrocort cream contains 30 mg. of tetracycline hydrochloride and 10 mg. of hydrocortisone acetate in a water-washable cream base. It is available in 5 gram tubes.

Celontin

. . . an anticonvulsant effective in the treatment of psychomotor seizures, has been announced by Parke, Davis & Co. It has also proved effective in reducing frequency of seizures among patients whose petit mal attacks were not controlled by other medications. Dosage of the anticonvulsant is 0.3 to 1.2 grams daily in divided dosage. Each yellow, orange-banded capsule of Celontin contains 300 mg. of methsuximide, and is available in bottles of 100 capsules.

Gantrimycin

. . . a double-spectrum antibacterial, has recently been released by Hoffmann-La Roche, Inc. It is indicated in respiratory infections caused by gram-positive and gram-negative microorganisms such as pneumococci, streptococci, staphylococci and H. influenzae; pyogenic infections such as cellulitis and infected wounds; peritonitis; and ophthalmic infections. It may also be valuable in urinary tract infections. There appears to be no cross resistance with most other antibiotics, and there is no need for alkalis or forcing of fluids.

In adults the dosage of Gantrimycin is two or three tablets, four times daily. In severe infections, the dosage should be increased to four or five tablets, four times daily. Children over 30 pounds should receive one or two tablets, four times daily; and children under 30 pounds should receive one tablet, four times daily. The usual caution for antibiotics—overgrowth of nonsusceptible organisms—applies as well to this preparation.

Each blue Gantrimycin tablet contains Gantrisin (sulfisoxazole, Hoffman-La Roche) 333 mg. and oleandomycin, in the form of the phosphate salt, 75 mg. Tablets are supplied in bottles of 50.

Hydeltra-T.B.A.

. . . a very slightly soluble ester of prednisolone, is now available from Merck Sharp & Dohme. It is capable of producing a longer and more pronounced local anti-inflammatory effect when injected into the synovial spaces than hydrocortisone acetate or hydrocortisone tertiary-butylacetate. It is recommended in the treatment of rheumatoid arthritis, osteoarthritis, traumatic arthritis (provided no intra-articular hermorrhage is present), and acute gouty arthritis.

The usual dose of Hydeltra-T.B.A. in the knee is 20 to 30 mg. In smaller joints, 7.5 to 10 mg. may be sufficient; 10 mg. is recommended for the temporomandibular joint. Injections may be repeated at appropriate intervals for continued effect. The usual frequency of injection is once every two or three weeks. This suspension of prednisolone is for intrasynovial injection and for injection into soft tissues only. It must not be administered by any other route.

Hydeltra-T.B.A. is supplied in 5 ml. vials, each ml. containing 20 mg. of prednisolone tertiary-butylacetate. The suspension also contains benzyl alcohol 0.9 percent, sodium citrate 0.1 percent, polysorbate 80 0.1 percent, sorbitol 45 percent, and water for injection.

Ketonil Powder

. . . a phenylalanine-deficient dietary preparation, has been released by Merck Sharp & Dohme. It is a unique mixture of amino acids and minerals designed for the treatment of phenylketonuria. It does not contain any significant amount of the essential amino acid, phenylalanine. It is made from casein hydrolysate, amino acids, mineral salts, and choline chloride. In phenylketonuria, mental retardation and various neurologic disorders are associated with the inability to metabolize phenylalanine properly. This inability leads to the accumulation of phenylalanine in the blood, and the appearance of excessive or abnormal metabolites in the blood and urine. When patients so afflicted eat a phenylalanine-limited diet, the biochemical abnormalities are corrected and usually, but to widely varying degrees, the abnormal behavioral, intellectual, and neurologic disorders are ameliorated. Dosage must be individually determined by the physician. The Ketonil powder is available in pound bottles.

Kynex

. . . a new sulfonamide developed and marketed by Lederle Laboratories, possesses several unique advantages when compared to other sulfa drugs now available. It is soluble, with prompt absorption

into the blood stream; effective blood levels are thus reached quickly, and blood concentration peaks within one to two hours; urinary excretion is very slow; and diffusion and penetration through body tissues, including the blood-brain barrier, is efficient. It may be prescribed wherever long-acting, low-dose sulfonamide activity is desired.

The average adult should be given a priming dose of Kynex (sulfamethoxypyridazine, Lederle) of 2 grams on the first day and one gram daily thereafter. Children should be treated according to age and weight. Kynex tablets of 0.5 Gm. are packed in bottles of 24 and 100.

Panmycin Phosphate

. . . the newly developed salt of tetracycline, has been announced by the Upjohn Company. The indications for the use of the phosphate salt are the same as those for the hydrochloride. However, the new salt is relatively insoluble in water and in gastric juice. It is readily absorbed from the gastrointestinal tract with some evidence of the production of higher blood levels than with tetracycline hydrochloride. The dosage of Panmycin phosphate, like the hydrochloride, averages one gram daily in four divided doses for adults. For children, it is based on 25 mg. per kilogram of body weight per day given in equally divided doses at six-hour intervals.

Panmycin phosphate capsules, packaged in bottles of 16 and 100 capsules, each contain phosphate complex equivalent to 250 mg. of tetracycline hydrochloride.

Pyribenzamine Anesthetic Tablets

. . . for preparing anesthetic solutions for endoscopic procedures and other topical anesthetic uses, have been released by Ciba Pharmaceutical Products. The solution thus prepared is stable indefinitely at room temperature, and can be resterilized without loss of potency. It may be used in urologic, gastroscopic, proctologic, and otolaryngologic procedures. A two percent solution for anesthetic use may be prepared by dissolving one Pyribenzamine (tripelennamine, Ciba) anesthetic tablet in 30 ml. of water. Each tablet is 600 mg., of a special size and shape to distinguish it from oral tablets, and may be obtained in boxes of 12 and 100 tablets.

Tempra

. . . an effective antipyretic-analgesic liquid for infants and children, has been released by Mead Johnson. The active ingredient in Tempra Drops and Tempra Syrup is N-acetyl-p-aminophenol, a compound which has been shown to be an effective, well-tolerated antipyretic and analgesic. Its toxicity in experimental studies has been extremely low, and clinically there has been notable absence of adverse side effects. It is indicated for symptomatic relief of fever and pain in infants and children, as in upper respiratory infections, muscular aches and pains, or following inoculations.

Both the drops and the syrup may be given directly into the mouth or mixed with fruit juice or water. The oral dosage of Tempra drops is administered every 4 to 6 hours according to the following schedule: children under 1 year, 0.6 ml.; 1 to 4 years, 0.6 to 1.2 ml.; 4 to 8 years, 1.2 to 2.4 ml.; and 8 to 12 years, 2.4 ml. The syrup, also administered every 4 to 6 hours, is given as follows: children under 1 year, ½ teaspoon; 1 to 4 years, ½ to 1 teaspoon; 4 to 8 years, 1 to 2 teaspoons; and 8 to 12 years, 2 teaspoons.

Tempra drops, a 10 percent solution containing 60 mg. of the active ingredient in each 0.6 ml., is supplied in 15 ml. bottles with an unbreakable, flexible, plastic, calibrated dropper. Tempra syrup, a 2.4 percent solution, containing 120 mg. of N-acetyl p-aminophenol in each 5 ml., and is available in bottles of 8 fluid ounces.

Trilafon

. . . an extremely potent anti-anxiety and anti-emetic agent which provides an improved therapeutic ratio and excellent versatility, is now available from the Schering Corp. It is recommended in the management of anxiety, tension, and psychomotor overactivity in a wide range of mental and emotional disturbances, whether of functional origin or associated with organic disorder where tranquilizers are effective. It was found to be a potent anti-emetic and is suggested in the management of nausea and vomiting due to pregnancy, migraine and tension headaches, gastroenteritis, postoperative states, carcinomatosis, radiation therapy, drug idiosyncrasies, or psychogenic factors.

Dosage of Trilafon (perphenazine, Schering) must be individualized for each patient. Tablets of 2 mg., 4 mg., and 8 mg., are available in bottles of 50 and 500 tablets; the 16 mg. tablet is packaged only in bottles of 500.

Viadril

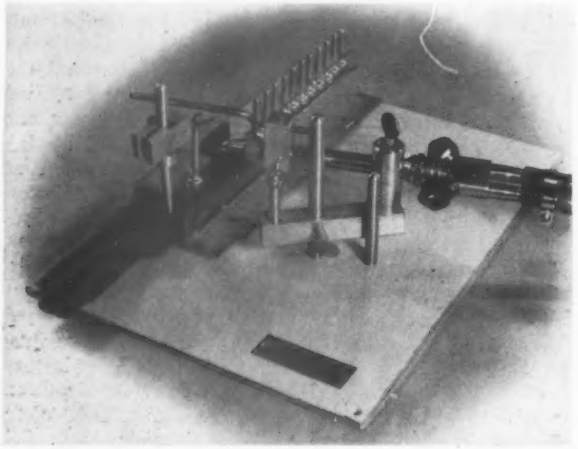
. . . for intravenous steroid anesthesia has been announced by Pfizer Laboratories. A steroid without hormonal activity, it is a nonbarbiturate hypnotic and basal anesthetic for intravenous use. It may be used for induction of anesthesia prior to maintenance with nitrous oxide or with other volatile or gaseous anesthetic agents. Used in this way, Viadril (hydroxydione sodium, Pfizer) has the following advantages: marked depression of laryngeal and pharyngeal reflexes; smooth, quick recovery, with minimum side effects; smooth induction resembling normal sleep; permits a minimal 3:1 mixture of nitrous oxide and oxygen; reduces need and dosage of muscle relaxants; and has less danger of respiratory depression or cardiac complications. Best results are obtained when atropine or scopolamine 0.4 mg. and meperidine 50 to 100 mg. are employed for preanesthetic medication. Viadril is used as a 1 percent solution prepared by adding 49.8 ml. sterile water for injection, sterile isotonic sodium chloride injection, or 5 percent dextrose to each 0.5 Gm. vial. The solution should be freshly prepared. The total recommended initial dose of the drug is 0.5 to 1.5 Gm., depending on the body weight of the patient, his level of apprehension, and the contemplated duration of surgery. Children 12 years of age may be given 0.5 Gm. The dose is injected at a rate of 250 mg. per minute into the tubing of a rapidly running parenteral solution. The chief precaution concerns the possibility of local irritation at the site of injection. Viadril is supplied in dry powder form in 100 ml. vials containing 0.5 Gm. of the drug.

Notes and Suggestions

by CLIFTON J. LATIOLAIS

AMPUL SEALER

The Kahlenberg-Globe Ampul Sealer* is ideally suited to sealing small lots of ampuls. It produces twisted drawn seals, or fused-tip seals, quickly and easily. The operator merely places the ampul in the machine and then pushes the slide through the guides. The sealing operation is completed automatically without requiring any manipulation on the part of the operator.



The unsealed ampul is placed in a socket in the slide, with the stem of the ampul held in the grippers which are above the flame. The slide is then pushed by hand through the guides. The stem of the ampul moves into the flame and the flame moves with the ampul as it passes through the guides. At the same time the ampul is being rotated in the flame and is uniformly lowered in its socket. When the ampul reaches the receiving line, the seal is completed and the waste tip is held in the grippers. The slide is pulled back, the waste tip discarded and a new ampul is inserted for sealing. When producing fused-tip seals, the gripper is not used.

The sealer is equipped with gas-oxygen burner, is of all metal construction and its base dimensions are 9″ x 12″. The completely furnished and ready to operate unit costs $120.00.

*Kahlenberg-Globe Equipment Company, P. O. Box 3636, Sarasota, Florida.

BOTTLE PUMP

A new bottle pump* permits the withdrawal of distilled water and other liquids from carboys and tanks without letting impurities enter during storage or when the liquids are drawn. The

air which is forced into the container to replace the liquid being pumped out must first pass through the special Ventgard air filter which removes and absorbs various impurities. Particulate matter as small as 0.2 micron is effectively removed. Bacteria, organic vapors, alkali and acid gases are prevented from entering the container. The filter element may be replaced after

1000 gallons of liquid have been drawn off. The bottle pump is easily affixed to a bottle, carboy or tank.

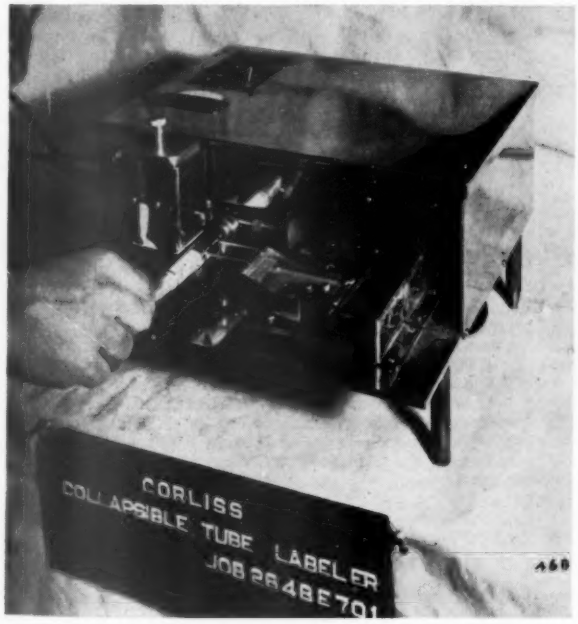
The Ventgard chamber number 0980 with squeeze bulb and metal tube costs $13.00 and the filter element number 0976 costs $5.00.

*Barnstead Still and Sterilizer Company, 37 Lanesville Terrace, Boston 31, Massachusetts

COLLAPSIBLE TUBE SLIP LABELER

The Corliss Collapsible Tube Slip Labeler, Model CTL* has been designed for applying slip labels to filled collapsible tubes. The label, itself, does not adhere to the tube. It takes a label from a stack, applies the adhesive, forms a round tube and positions this label, so-formed, on to the collapsible tube. The machine will apply labels at a speed of approximately 35 per minute.

The labeler is compactly built, weighs 44 pounds, and measures 17½" x 15" x 9½". The machine has been designed to handle tubes up to

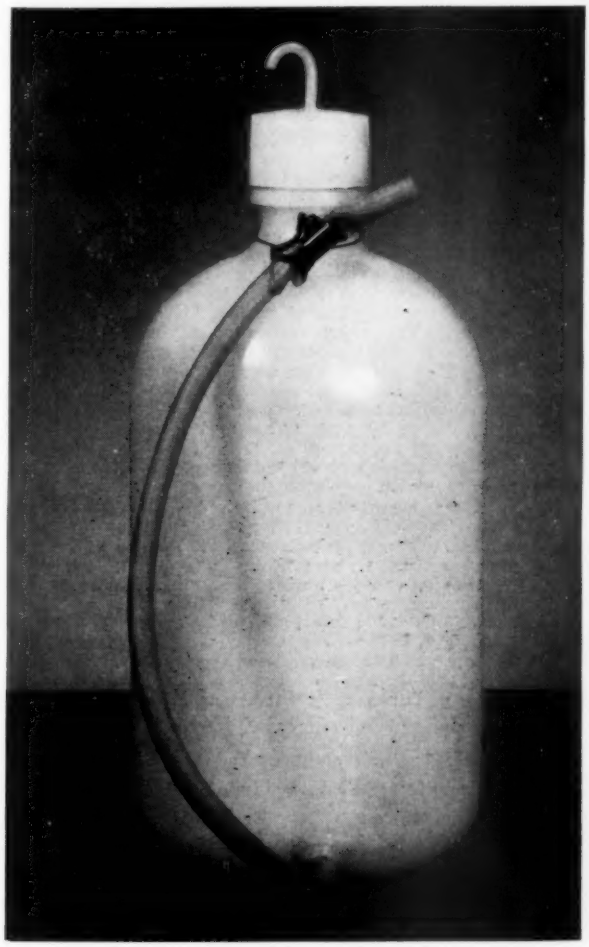


1 inch in diameter. Change parts can be supplied to handle any diameter tube up to that size. The exposed working parts of the labeler are either chromium plated or stainless steel. The machine works on a vacuum of approximately 20 inches and has to be connected to a vacuum line or pump. The current selling price of Model CTL Labeler including one set of change parts is $1,600.00

*Potdevin Machine Company, 233 North Street, Teterboro, New Jersey.

LIQUID DISPENSING CONTAINER

Known as the Plas-T-Fill container*, this polyethylene dispenser is available in 1, 2, 5, 6½ and 13 gallon sizes. The hose connection is exceptionally low, allowing full drainage. The cap has a dust-proof vent to allow a rapid, continuous flow. The clamp allows instantaneous full-flow



or shut-off, which is an advantage over regular polyethylene spigots. Prices range from $9.25 for the one gallon size to $28.00 for the 13 gallon container. The containers are supplied with an open vent unless otherwise specified.

*Chandler Specialty Company, P. O. Box 203, North Postal Annex, Boston 14, Massachusetts.

GRINDING AND MIXING EQUIPMENT CATALOG

Bulletin Number 280, which describes jar mills, ball and pebble mills, pail and drum tumblers, and special mixing equipment, is available from U. S. Stoneware Company, Akron 9, Ohio.

selected pharmaceutical abstracts

and summaries of other articles interesting to hospital pharmacists

edited by LEO F. GODLEY *and* CLIFTON J. LATIOLAIS

IRRITATION BY STEROIDS

Local Irritating Effect Caused by Topical Use of Steroids in the Eye, Lippman, Otto, M.D., A.M.A. Arch. Ophthal. 57:339 (*Mar.*) 1957.

References in the literature pertaining to the topical use of steroids in the eye are reviewed. Citations from the literature on cortisone, hydrocortisone, prednisone, prednisolone and fludrocortisone illustrate the contradictory statements made by various authors on the irritating effects of these substances in the eye.

However, more patients notice local irritating effects in the eye caused by topical use of steroids than is generally assumed from perusal of the literature. The author observed deposits of whitish crystals in various areas of the eye after topical use of steroid preparations. Preparations in the study included a variety of products of different pharmaceutical manufacturers. Objective proof of the presence of such irritating deposits was obtained through photographs. These deposits were qualitatively analysed by chromatography and were found to be steroids.

Pharmaceutical research is directed toward producing steroid preparations which may be more soluble. True solutions (not suspensions) of steroids would be an advance of ophthalmic therapy because it would eliminate irritating side effects.

According to the author, there is a need for two kinds of ophthalmic topical steroid preparations with different indications: (1) a more slowly absorbable and less soluble preparation for its antiphlogistic effect on the surface and (2) another more penetrating and more soluble product for its effect on more posterior segments of the eye.

CLIFTON J. LATIOLAIS

TETRACYCLINE BLOOD LEVELS

Blood Concentrations of Three Tetracycline Capsule Preparations Following a Single Oral Dose in Man, Welch H., Lewis, C., Staffa, A. and Wright, W. W., Antibiotic Medicine and Clinical Therapy 4:215 (*April*) 1957.

Tetracycline hydrochloride, tetracycline phosphate complex, and a mixture of tetracycline base and sodium hexametaphosphate were studied for blood concentrations following the oral administration of the three tetracycline preparations. The results showed a markedly higher serum concentration from the phosphate complex and sodium hexametaphosphate mixture than that obtained from tetracycline hydrochloride. Futhermore, tetracycline phosphate complex and tetracycline-sodium metaphosphate mixture were equally effective in producing high blood concentrations.

NORMAN HO

ROLE OF PHARMACIST

Pharmacist at Work, The Health News Institute, Medical Economics 34:301 (*March*) 1957.

More and more the public service role of the pharmacist depends not so much upon what he does as upon what he knows. In 1960, the five-year course, already an accomplishment in nearly one out of five pharmacy schools, becomes effective in the remainder, a recognition of the pharmacist's emerging role as a consultant. It takes more intellectual skill to inform and explain than it does to count and pour.

THEODORE J. BENYA

CHLORPROMAZINE CONTACT DERMATITIS

Chlorpromazine Dermatitis: Occupational and Immunochemical Aspects, Levan, Norman E., The New England Journal of Medicine 256:651 (*Apr.* 4) 1957.

Chlorpromazine is a potent cutaneous sensitizer, particularly in the form of its injectible solution; mere exposure to the fumes of opened vials frequently results in severe and, at times, prolonged disabling eruptions. Cross-sensitizations exist between chlorpromazine and certain commonly used drugs, most notably other phenothiazine derivatives *i.e.* Phenergan, Pyrrolazote, gentian violet, Sparine and Compazine.

One sensitization has been induced through cutaneous exposure and/or intramuscular administration of chlorpromazine (or other drugs particularly antihistaminics and ataraxics containing a phenothiazine radical) may produce recurrences.

THEODORE BENYA

NOTE: Contact dermatitis via frequent counting of chlorpromazine tablets has been noted by this abstracter.

CYCLOSERINE

A Current Appraisal of Cycloserine, Storey, P. B. and McLean, R. L., Antibiotic Medicine and Clinical Therapy 4:223 (*April*) 1957

Cycloserine, d-4-amino-3-isoxazolidone, is a broad-spectrum antibiotic found in cultures of *Streptomyces orchidaceus* and *ganyphalus*. It is water-soluble (100 mg./ml.), stable in an alkaline solution, but very instable in an acid or neutral environment.

After oral administration the drug is rapidly and completely absorbed in the gastrointestinal tract and is widely distributed throughout the body tissues and fluids with no appreciable blood-spinal fluid barrier to the drug. Approximately 64 percent of the drug is eliminated by the kidney and excreted in the urine unchanged, the rest being metabolized to unknown substances. The neurotoxic manifestations of drowsiness, hyperreflexia, mental confusion, and convulsions are the striking clinical toxic reactions. The incidence of generalized convulsive seizures is related to dosage.

Although cycloserine exhibits weak antituberculous activity *in vitro*, its most important clinical application is in the treatment of tuberculosis. Its broad-spectrum antibiotic activity is low and is not comparable to that of the generally used antibiotics. Clinical studies report that cycloserine is a relatively weak antitubercular drug, but may be of some value in patients resistant to other drugs, and that resistance develops with higher concentrations of the drug. Cycloserine, in combination with other antitubercular drugs, particularly isonicotinic acid hydrazide, seems to be an effective agent. The combination of cycloserine, 0.5 Gm., and isonicotinic acid hydrazide, 0.3 Gm., has minimal clinical toxicity.

NORMAN HO

SURGICAL ANTISEPTICS

Surgical Antiseptics, Medrek, T. F., Litsky, M. S. and Litsky, W., Surgery Gynecology and Obstetrics (with International Abstracts of Surgery) 104:209 (*March*) 1957.

It was not until the investigation by P. B. Price in 1938 that scientific evaluations of antiseptics began to appear in the literature. At that time Price introduced the term "degermination," in lieu of "sterilization" to describe the process by which the bacterial counts of the skin are lowered via skin antiseptics. This new phraseology was based largely on his study of normal skin flora, i.e., "resident," "embedded," "transient" and "surface." According to Price, it would theoretically take more than 2 hours of unrelentless scrubbing to render the skin sterile, and therefore, for all practical purposes, sterilization of the skin is highly improbable.

Gradually, however, the trail of more or less ideal antiseptics began to grow together with an increasing number of scientific evaluations of surgical antiseptics. This article is a review of such literature aimed at determining the relative efficacy of: iodine, mercurials, ethyl alcohol, Zephiran chloride, hexachlorophene and pHisohex, acrizane, heliogen and Clorpactin WCS 90.

According to the results of many investigators it appears that pHisohex (pHisoderm plus 3% hexachlorophene or G-11) comes the closest to the ideal skin antiseptic. The preparation appears to kill bacteria quickly; inhibits their growth; renders the skin's surface virtually sterile in many cases; forms an antibacterial film which kills fresh bacteria in the event of subsequent contamination after its use; saves time, as 3 minutes is all that is necessary to prepare the skin preoperatively, provided the skin has been regularly exposed to G-11; it is nonirritating; and it is hypoallergic. No evidence is presently available as to the effectiveness of G-11 against acid-fast bacteria, bacterial spores, spirachetes, fungi, or viruses.

Iodine has been found to be a very effective skin antiseptic; however, extreme caution is necessary to avoid skin irritation if the iodine is allowed to remain on the skin for any sustained period. Murphy (1951) found that a 2% tincture in 95% ethyl alcohol, allowed to dry and subsequently removed with 70% alcohol was the most effective procedure.

The alcohols, however, together with mercurials and Zephiran chloride form invisible films on the skin beneath which bacteria multiply at abnormal rates. The inevitable possibility of a break in the film precludes complete reliance upon any one of these three types of antiseptics.

The three more recently developed antiseptics—acrizane, heliogen and Clorpactin WCS 90—show definite promise but need further investigation before their relative feasibility can be determined.

THEODORE BENYA

SULFONYLUREA IN DIABETICS

Effect of Sulfonylurea Compounds in Diabetic Children, Camerini-Davalos, R. C., Marble, A., White, P., Belmont, M. and Sargent, L., New England Journal of Medicine 256:817 (*May* 2) 1957.

The hypoglycemic effect of Carbutamide (BZ-55) and Tolbutamide (Orinase) was studied in 228 diabetic children under 16 years of age. A fall in the blood sugar level of more than 20% in four hours with a single dose, which was adjusted according to age groups, from the initial value was regarded as a positive response.

The results were analyzed against the age of the subject, age at the onset of diabetes, body weight, duration of insulin treatment, usual dose of insulin, and duration of diabetes. There was an increase in positive responses with increase in age at the onset of diabetes. Most of the positive responses occurred in children with normal weight and in those children receiving a daily insulin dose of less than 20 units and taking insulin for less than four years. The correlation of the duration of diabetes with the hypoglycemia was most significant throughout the analysis. The percentage of positive responses fell sharply after four years of diabetes.

The initial (fasting) blood sugar level did not seem to influence the response to the sulfonylurea drugs, contrary to many reported studies. Although adequate blood levels of the drug are important, significant, hypoglycemic responses depend upon the other factors previously considered. The data of maintenance on Carbutamide and Tolbutamide was considered too few to be conclusive despite the poor results recorded. Generally, no untoward effects were noted except for one case of generalized itching from Carbutamide. A limited discussion on the mechanism of action of the sulfonylureas was presented.

NORMAN HO

STANDARDIZING PARENTERALS

A Quarter Century of Success and Failure—in Standardizing Parenterals, Miller, Lloyd C., Bull. Parenteral Drug Assoc. (*Nov.-Dec.*) 1956.

Known history of attempts at intravenous injection dates back to Egyptian culture. However, intravenous therapy became a successful medical tool only after the discovery of sterilization and pyrogens.

In the early phases of development of parenteral solution packaging, a multiplicity of problems arose. But during these past 25 years much progress has been made in the standardization of equipment, procedures and controls in the preparation of parenteral products.

Tests and standards were developed by a special U.S.P. Advisory Committee for providing glass containers of desirable quality. Closures made from a variety of materials are now available to meet specific needs. Drafting standards for closures have been difficult but objective standards are now in prospect for *U.S.P. XVI*.

Tests for sterility are still undergoing change. By inference, sterility is the state of being *entirely* free of living organisms. There is still no means of demonstrating positively that this state has been attained. "Sterile" is somewhat of an arbitrary designation and a test for sterility is only an enlightened search for certain possible contaminants. A sterility test is an attempt to infer the state of the whole from an examination of only a part. A shortcoming of our present sterility test is that it does not reveal presence of viruses.

Information provided by a sterility test on a homogenous batch is not related to the size of the batch but is proportional to the actual number of samples examined, not upon the number filled. For this reason there has been gradual acceptance of this concept and abandonment, even by the National Institutes of Health of the "N.I.H. three-percent rule."

All these weaknesses point up the importance of faultless control over the sterilization process.

The U.S.P. test for pyrogens appears to be as sensitive as necessary. However, it is only a limit test and, unfortunately, depends upon the level of sensitivity of rabbits which are one-third to seven times as sensitive as man, depending upon experimental conditions. Utilization of a pyrogen reference standard would remove this serious theoretical drawback. Such a standard was prepared for international distribution by the World Health Organization. The U.S.P. Committee on Revision is not disposed to specify the use of a standard in the U.S.P. test since interest is in demonstrating that substantially no pyrogens are present rather than in measuring the degree of pyrogenicity.

The heart of successful standardization lies in the official assay methods. Chemical processes are rapidly replacing biological assays.

Injection accessories and apparatus have been improved considerably and are standardized. Improvements in glass and disposable syringes, disposable blood infusion assemblies, filling equipment, and bacteriological filters have all been responsible for better and safer parenteral products.

Attempts to devise an objective clarity test for solutions have failed. The U.S.P. XIII test for clarity had to be abandoned because of the indefiniteness of certain statements. The need for an objective reproducible test is still unfilled.

Multiple-dose containers impose certain risks. The U.S.P. and N.F. parenterals are classified as to those which must go into single-dose containers and those which may go into multiple-dose containers. But the hazards involved are not eliminated when a diaphragm-type closure is used even though the label carries instructions to discard any unused contents because a preservative is lacking. Consideration is being given to revise the U.S.P. definitions of the two types of closures.

Progress in improved drug standards is a result of cooperative effort among industry, government, medical profession, colleges of pharmacy and the U.S.P. and N.F. Revision Committees.

CLIFTON J. LATIOLAIS

HYPOTHERMIA: AN AID IN SURGERY

Hypothermia in the Management of the Poor-Risk Patient Undergoing Major Surgery, Salomon, N.A., Spencer, W.A., Boling, J.S., and Thistlewaite, J.R., J. Am. Med. Assoc., 163:1435 (Apr. 20) 1957.

Induced hypothermia appears to reduce stress reactions associated with anesthesia and operative procedures encountered during surgery.

These clinicians conducted a study at the District of Columbia General Hospital in Washington. There were 76 poor-risk patients who underwent major surgery successfully employing hypothermia.

Patients were anesthetized, put on a water cooled mattress and their temperatures reduced slowly to between 28° and 32° C. This cooling reduces tissue oxygen requirement; and cerebral metabolism decreases from 40 to 75 percent. With this reduced cerebral metabolic rate, only about half the usual amount of anesthetic was required for surgical anesthesia. It was observed that these patients reacted post operatively like patients who had had minor surgery. The usual "washed-out" appearance that lingers for a few days was conspicuously absent. Post operative urine excretion was far in excess of that under usual post operative conditions.

Under hypothermia, the patients presented no difficulty as far as blood pressure levels, pulse rate, and depth of anesthesia were concerned. Trimethaphan camphorsulfonate (Arfonad) was used to prevent reflex vasoconstriction and thus facilitated cooling. Arrhythmias (a complication sometimes noted in hypothermia) were also prevented by the administration of trimethaphan.

LEO F. GODLEY

ANTIHYPERTENSIVE DRUGS

A Clinical Evaluation of Antihypertensive Drugs, Page, Irvine H., Bull. N. Y. Acad. Med. 33:246-262 (*Apr.*) 1957.

During the past ten years, antihypertension drug therapy has increased manyfold. Goals of this therapy are (1) to reduce arterial pressure, except in advanced arteriosclerotic hypertension; to minimize side effects; (3) to prevent the cardiovascular disease which usually accompanies hypertension; (4) to prolong life, as pleasantly and comfortably as possible; and (5) to avoid unreasonable expense to the patient.

Although little was done in research on this problem for many years, pharmaceutical manufacturers are presently doing considerable work on experimental antihypertensives, in addition to those currently available on the market. At present approximately half of the patients with high arterial pressure can be benefited by drugs now available. But even in these cases side effects are so common as to be taken almost for granted.

It is felt that, while new drug therapy greatly lowers blood pressure, little has been accomplished in the prevention or treatment of the accompanying cardiovascular disease.

Antihypertensive drug therapy is in an experimental state at present, with all types of compounds being evaluated. The chief objection to most of them is the side effects. Another factor to consider is the cost of the medication, since financial problems are one of the important stresses to which the hypertensive is exposed.

There is considerable confusion and contradiction in the literature regarding results with antihypertensives. Three points are discussed: (1) therapeutic effectiveness seems to depend on the drug's ability to lower arterial pressure enough to prevent progress of vascular disease; (2) arterial hypertension involves different mechanisms, and a drug must act on the specific mechanism to be effective; and (3) there appears to be a tendency to study large series of cases, which may only permit superficial study of the results. It is felt that there is, generally speaking, inadequate basic research being accomplished on hypertension. Hypertension patients must be educated to live with their condition, not merely handed a pill for the acute conditions.

Ganglion blocking agents act by competing for acetylcholine, the transmitter of nerve impulses passing through autonomic ganglia. Most of these agents are quaternary ammonium compounds, chemically similar to acetylcholine. The exact physiological mechanism involved in lowering arterial pressure is still in doubt. Each new ganglion blocking agent introduced since hexamethonium appears to be better absorbed, thus lessening the danger of irregular absorption; dosages have been reduced; side effects have remained as prominent, however.

A discussion is presented on two of the newer antihypertensives, mecamylamine (Inversine) and chlorisondamine (Ecolid). Mecamylamine, a secondary amine, appears to be absorbed completely from the gastrointestinal tract, and has been effective in about one-half of the patients, although no more so than other blocking agents. In addition, there is a considerable variation in the dosage from day to day. The advantages of this drug are the predictability of intestinal absorption and the ease of handling patients on the drug. Chlorisondamine is a good blocking agent with a regular absorption. Although there appear to be no complications to its use, longer clinical trial is necessary for full evaluation. Much is still unknown as to why the ganglion blocking agents fail in many cases, why refractoriness develops, and why supine pressure is often so little affected.

Variable results have also been reported on the use of reserpine as an antihypertensive. Like other drugs in this group, it appears to exhibit a variability of effect in different patients. In some patients a combination of reserpine and mecamylamine or chlorisondamine may permit a lower dosage of the ganglion blocking agent with good results, while in other patients the therapy is ineffective. Reserpine is the only tranquilizer tried to any great extent as an antihypertensive agent.

Hydralazine (Apresoline), which has been widely used for about six years, is another drug over which there is much disagreement regarding its effectiveness. Initial side effects have often been discouraging, but if used carefully and with cautious persistence it is a valuable antihypertensive compared with others presently available. Hydralazine has caused an interesting new syndrome, one in which a chemical agent produces a collagen disease. One part of the syndrome resembles early rheumatoid arthritis, and the later and severe form an acute systemic lupus erythematosus.

One-half of the severe hypertensives fail to respond satisfactorily to drug therapy. Failure generally falls into one of four groups: (1) no response to any measures employed; (2) a good but transient response; (3) a poor response due to lack of cooperation from the patient; and (4) too severe side effects. Specific treatment in hypertensives will continue to have variable results until more is known of the mechanisms which keep arterial pressure elevated.

Patients with severe hypertensive disease are having their lives prolonged with drugs and, as a consequence, more and more vascular diseases are appearing. Thus new problems are developing even while old ones are still only partially solved. Much research remains to be done in the field of hypertension.

JOANNE BRANSON

MEDICINE ON TELEVISION

How Authentic is Medicine on Television? Unsigned, J. Am. Med. Assoc. 164:49 (May 4) 1957.

Fact and fiction presentations containing medical information on television networks reach an audience of 50 million people. These programs appear in varied forms: music, interview, drama, panel discussion, and individual reporting. It is judged that the public demand for this sort of presentation is still not saturated.

In 1956 the American Medical Association appointed a 12-man Physician Advisory Committee on Television, Radio, and Motion Pictures. This committee functions under the auspices of the A.M.A.'s Board of Trustees, and its Public Relations Department.

Physicians volunteer their advisory services through two groups of this committee. One group is in New York City and the other in Los Angeles (95 percent of all television, radio and movie productions originate in these two cities). It is said

that producers are lavish in their praise of these physicians on the advisory committee.

The committee is careful to offer its service as an advisor and not a censor. Many of the popular network presentations are being polished routinely by these physicians. The use of these media as a means of relaying authentic medical information has become so popular that the A.M.A. and the National Association of Radio and Television Broadcasters plan to co-sponsor a workshop this fall for representatives from various medical groups. Better health information to the public will result from this liaison.

LEO F. GODLEY

REUTHER HEALTH PLAN

Is Reuther Bluffing Medicine?, Health News Institute, Sherwood, H.C., Medical Economics 34:130 (*March*) 1957.

Labor leader Reuther is devising one of the most comprehensive closed-panel plans, which would be in direct competition with Michigan's Blue Shield and Blue Cross Plans. This midwest plan would be comparable to New York's Health Insurance Plan on the east coast and to the Kaiser Foundation Plan on the west coast. The labor leader thinks voluntary health plans in general offer too few benefits at too steep a price.

The directors of his Community Health Association (C.H.A.) exclude doctors and insurance men. In general the program is as follows:

1. Provides comprehensive care, including preventive diagnostic services; medical treatment in home and office; surgery; miscellaneous services like x-rays; and hospitalization—community-wide prepaid service.
2. Benefits to be provided through (selected) group practice units working in local hospitals—subscribers would have to choose a (family) physician from among the members of that particular group. Such members may be placed on full salary.
3. The plan will be optional—thus if a local union president covered by Michigan's Blue plans should sign up with C.H.A., individual workers would be allowed to stay with Blue plans if they wanted to.
4. Plan will be open to non-U.W.A. union members as well.

Buts

1. If local doctors sign up with C.H.A., will they be able to use the hospital facilities they're now using?
2. Whether the plan can hurdle the medical hostility that confronts it is a question.
3. It has stirred up investigation into the present Blue plans to develop greater benefits if possible.

THEODORE BENYA

LEADERSHIP

The Anatomy of Business Leadership, Macarow, Frederick G., Manag. Rev. 46:88 (*Feb.*) 1957.

With the expansion of scientific and technical progress, management must move faster in order to prepare for the job ahead. Every organized effort requires order, managerial technique and leadership. Everyone can benefit from a systematic program of developing the qualities of leadership essential to good management and to effective direction and coordination of the efforts of subordinates.

Executive qualifications may be divided into three general classifications: (1) ability to analyze and arrive at satisfactory conclusions; (2) ability to set up a proper organization; (3) ability to make the organization function.

Qualifications of leadership may be placed in a framework of eight basic characteristics: (1) inspiring confidence in people; (2) persistence in driving toward the goal; (3) ability to communicate without misunderstanding; (4) willingness to listen receptively; (5) genuine interest in people; (6) understanding people and their reactions; (7) objectivity; (8) forthrightness.

The tools of leadership are simple and basic, but it may be necessary to polish them up and practice them. These tools are: (1) close and frequent contacts with people; (2) keep all interested parties informed; (3) assure that all employees receive fair, impartial, and considerate treatment; (4) know what is going on; (5) assume full responsibility of running your job; (6) talk to people to maintain close and frequent contact.

There is a distinction between leadership and teamwork. Teamwork cannot exist without leadership, but leadership can exist without team play.

Leadership must be coupled with teamwork if the purposes of an organization are to be secured. Frequently, the leader must subordinate his own personal desires to the interest of the team.

The leader must give his subordinates maximum leeway possible in determining their own method of approach, because that in itself develops their leadership ability. However, the leader must be sure that when he decides that it is necessary to use a particular method of approach, he can depend on his subordinates to pull as a team without hesitation.

The qualities of leadership and team play meet their sternest test when a decision is indicated for divergent points of view. In such cases the leader must have a thorough understanding of what effect the decision will have at the lower levels as well as the broad implications that the decision has at higher levels of management.

The job of an executive requires constant application throughout his career. The importance of a leader lies not in his own production but only as he leads people to accomplish their objectives—objectives channeled toward an over-all planned result.

CLIFTON J. LATIOLAIS

TECHNICAL WRITING

Technical Writing Has Become a Research Tool, Bernson, Maxwell I., Industrial Science and Eng. 4:7 (*Jan.*) 1957.

Some of the salient factors for effective presentation of technical material is discussed. Technical writing serves two main purposes: (1) establishment of a permanent record of events of work done and (2) dissemination of information or ideas.

The written word helps to formulate the thoughts of the writer and then goes on to stimulate the thoughts of the reader. The technical writer needs to learn the proper usage of technical writing so that it may best serve him in his work.

There are many applications of technical writing, dependent upon the purpose, but the writing approach is similar in each case. Technical writing is a straight-forward, rhetorical, unstyled presentation which follows from introduction through explanation to conclusion with minimum distraction and maximum logic. This is a "style" of writing. Good English is necessary but so are logic and clarity. The purpose of technical writing is to explain, not to confuse.

Writing begins with note taking and recording of facts, working them into categories and ending up with an outline for the presentation. The elements of a text, report or project contains an introduction to the subject or statement of the problem, a discussion of the conditions and techniques of study, a record of observations and results and lastly, conclusions drawn from results.

When written, visualization of the salient points of the work are facilitated and flaws can be corrected. A technical "style" lends itself to objectivity.

The review and comprehension function of technical writing is a research tool valuable not only to the writer, but to others in his company and also to readers.

The technical writing employed must convey the work and its conclusions to the reader with perfect accuracy. This is essential because the reader cannot readily contact the writer to clarify or explain any ambiguity. When the reader receives and understands the conveyed thought, the technical writing function of disseminating information is complete. The information contained in the text of a paper is an end-product to the reader; it should not be a by-product of the writer's labor.

CLIFTON J. LATIOLAIS

INACTIVATION OF PRESERVATIVES

The Interference of Nonionic Emulsifiers with Preservatives III. de Navarre, M. G., J. Soc. Cosmetic Chem., 8:68 (Mar.) 1957.*

Generally, nonionic surfactants based on the addition of ethylene or propylene oxide to fatty acids, alcohols, esters, or polyglycols interfere with the preservative properties of compounds containing either a phenolic or carboxylic hydroxyl group in the molecule. This interference is apparently due to the formation of complexes by hydrogen bonding. The effectiveness of a preservative depends upon the specific product formulation, the concentration, and the degree of dissociation which in turn is influenced by the pH of the medium.

The experimental work reported here dealt primarily with the extent of the fungistatic action on *Aspergillus niger* by a solution of 2 percent nonionic emulsifier and 0.1 percent preservative in an acid-adjusted Jaag liquid medium. The nonionics, exemplifying every type, included Pluronic L-64, Carbowax 1540, ethoxylated proproxylated glycerin, Moyj 59, G-3720, ethoxylated castor oil, ethoxylated cholestinal, PEG 600 ricinoleate and stearate, PEG 1000 monolaurate, all the Spans and Tweens, a 25 percent solution of oleic acid in Tween 80 and a 30 percent mineral oil Span-Tween emulsion. The preservatives were methyl p-hydroxybenzoate, scorbic acid, and dihydroacetic acid. There were variations in the results in the study, but the growth of the test organism was significant and consistent in all cases, even in double concentrations of the preservative.

Anionics (Duponol C, Aerosol OT, Nacconal NRSF) and cationics (Roccal, Hyamine 10X and Ethyl Cetab) were introduced along with the nonionics, with and without methyl *p*-hydroxybenzoate. The data indicated that high concentrations of anionic and cationic agents in the nonionic tend to neutralize the interference.

NORMAN HO

* Abstract of Part II of this article appeared on page 66 of the Jan.-Feb. issue of THE BULLETIN.

current literature

. . . also calling your attention to the following articles appearing in recent hospital and pharmaceutical journals

ADMINISTRATION

—COST OF MEDICATIONS

Moravec, Daniel: "Please Itemize My Drug Charges," *Hosp. Management* 83:100 (June) 1957.

—POLICIES

Zugich, John (Ed.): After-Hour Medication Program, *Am. Profess. Pharm.* 23:450 (May) 1957.

—PURCHASING

Richards, W. C.: Purchasing—Standardization, *Hosp. Management* 83:111 (June) 1957.

Wickenden, D.: Purchasing and the Hospital Pharmacist, *Hosp. Pharm.* (Canada) 10:69 (Mar.-Apr.) 1957.

—STOCK CONTROL

McPherson, Leo A.: Punch Cards for Inventory Control, *Hosp. Management* 83:86 (June) 1957

CIVIL DEFENSE

Sister M. Marguerita: Feminine Impressions of Civil Defense Pharmacist Indoctrination Course, *Hosp. Pharm.* (Canada) 10:82 (Mar.-Apr.) 1957.

DETAILING LLLL

Parker, Paul F.: Detailing in the Hospital, *J. Am. Pharm. Assoc., Pract. Pharm. Ed.* 18:217 (Apr.) 1957.

EDUCATION AND TRAINING

Francke, Don E.: Education and Internships in Hospital Pharmacy, *J. Am. Pharm. Assoc., Pract. Pharm. Ed.* 18:224 (Apr.) 1957.

LAWS AND REGULATIONS

Duckworth, Frank A.: Regulating New Drugs, *Drug and Cosmetic Industry* 80:445 (Apr.) 1957.

NARCOTICS

Dodds, Arthur W. and Archambault, George F.: A Narcotic Control System for the Large and Small Hospital, *Hosp. Management* 83:93 (May) 1957.

PARENTERAL SOLUTIONS
(INCLUDES CENTRAL SUPPLY)

Sister M. Teresa: Hospital Pharmacy and Central Supply Combination Service, *Am. Profess. Pharm.* 23:358 (Apr.) 1957.

PHARMACY AND THERAPEUTICS COMMITTEE
(INCLUDES FORMULARIES)

Friend, Dale S. and Hassan, William E.: How to Prepare a Hospital Formulary, *Modern Hosp.* 88:94 (Apr.) 1957.

RADIOISOTOPES

Paul, W.: How Radioactive Drugs are Handled in the Clinical Laboratory, *Hosp. Pharm.* (Canada) 10:77 (Mar.-Apr.) 1957.

SMALL HOSPITALS

Frazier, Walter M., and Lawson, Robert E.: Retail Pharmacists and the Hospital, *J. Am. Pharm. Assoc., Pract. Pharm. Ed.* 18:221 (Apr.) 1957.

STATISTICS AND SURVEYS

Stauffer, Isabel: Enrollment and Availability of Hospital Pharmacy Personnel, *Hosp. Pharm.* (Canada) 10:72 (Mar.-Apr.) 1957.

Anon.: Pharmacy in Small Hospitals, *Am. Druggist* 135:14 (May 20) 1957.

GENERAL

Briner, William H.: Hospital Pharmacy . . . A Specialty and A Career, *J. Am. Pharm. Assoc., Pract. Pharm. Ed.* 18:214 (Apr.) 1957.

GENERAL—STATISTICS—INTERNSHIPS

Archambault, George F.: Hospital Pharmacy's Current Status, *Hosp. Progress* 38:88 (Apr.) 1957.

BOOK REVIEWS

LAW OF HOSPITAL, PHYSICIAN, AND PATIENT. By Emanuel Hayt, LL.B., Lillian R. Hayt, M.A., J.D., and August H. Groeschel, A.B., M.D., M.S. Second Edition. Published by Hospital Textbook Company, New York. 1952. 804 pages. Price $10.00.

Not only is *Law of Hospital, Physician, and Patient* a valuable reference on medicolegal matters for lawyers, administrators and physicians but it is also a useful and informative text for hospital pharmacists.

Divided into seven carefully considered parts which are further subdivided into 54 appropriate chapters, this book presents the subject matter clearly and authoritatively, supported by typical case citations.

Part I, entitled "The Law and Its Administration" (seven chapters) pertains to the nature and sources of law, the case system, tribunals, proceedings before trial, trial, evidence and appeal.

The eight chapters of Part II, "Hospital Organization and Administration," deal with the hospital as a charitable institution, as a corporation, as an employer, and medical staff and medical society relations; whereas, Part III, "Hospital Liability for Personal Injury," (five chapters) outlines the liability, immunity and negligence of charitable, governmental and private hospitals to patients and non-patients. Hospital malpractice and liability insurance are also discussed.

Of particular interest to hospital pharmacists are two chapters in Part IV. These are "Drugs and the Pharmacy" and "The Prescription and Use of Narcotic Drugs." A highlight of the chapter on "Drugs and the Pharmacy" is the section dealing with the legal responsibilities of the pharmacist.

The hospital must exercise care in the selection of the pharmacist. Points elaborated include skill and care required of pharmacists, the pharmacist's liability for substituting drugs, responsibility and negligence of pharmacists in filling prescriptions for unusual doses or filling illegible prescriptions, criminal negligence in filling prescriptions. Legal implications of labeling drugs and poisons are discussed including mistakes in labeling as well as improper or lack of sufficient labeling. Since negligence is essential for liability, the ordinary rules of liability for negligence are outlined and the effect of contributory negligence is discussed. Also included in this chapter is a brief review of the liability of the manufacturer of drugs, ownership of prescriptions, duty to fill or refill and preservation of prescriptions, and the prescription as legal evidence. Interpretation of portions of the Federal Food, Drug and Cosmetic Act is presented.

The following chapter "The Prescription and Use of Narcotic Drugs" is concerned with the application of the Harrison Narcotic Act to the purchase, care, dispensing and administration of narcotics in the hospital. Main sections of this chapter include legal control of narcotics, records and control in the hospital, use of prescriptions and official forms, and good faith in treatment.

Part V deals with legal aspects concerning the professional care of the patient by members of the healing arts including medical students, interns, residents, nurses, and dentists. Malpractice insurance and statutes of limitations for personal injuries are discussed.

"Confidential Information and Medical Records" is the title of Part VI; whereas Part VII deals with "Contractual Relationships and Obligations."

It is highly desirable that the hospital pharmacist possess a basic knowledge of law applying to the hospital as well as to the practice of pharmacy. *Law of Hospital, Physician, and Patient* is certainly an authoritative reference which provides an opportunity for hospital pharmacists to become well acquainted with this increasingly important subject.

CLIFTON J. LATIOLAIS

HANDBOOK OF POISONS by Robert H. Dreisbach, M.D., Ph.D. 426 pages. 1955. Published by Lange Medical Publications, Los Altos, Calif. Price $3.00.

According to the author, the purpose of this *Handbook of Poisons* is to provide a concise summary of the diagnosis and treatment of clinically important poisons. Included also in tabular form are many other potentially poisonous agents that have not been important clinically.

The Handbook is divided into six major sections. The first section is devoted to general considerations of poisons and poisoning. The four chapters comprising this section give important information on the emergency management of poisoning, general principles in the treatment of acute and chronic poisoning, prevention of poisoning, and the physician's legal and medical responsibility in poisoning.

Sections II through VI include pertinent data on specific poisons. These poisonous substances are categorized into the following groups: pesticides and other agricultural poisons; industrial hazards; household chemicals; medicinal poisons; and plant and animal hazards. The purpose of this method of grouping, according to the author, allows for considerable correlation of poisons with types of exposure. Chemically similar agents with varied uses appear in more than one section. Wherever possible, chemically and in some cases, pharmacologically related agents have been grouped together. Brand names have been used freely and are included in the general index to enable the physician to identify the toxic principle in a given proprietary preparation.

The data on specific poisons include general information on single chemicals or groups of chemically related agents, clinical findings on acute and chronic poisoning and laboratory data, treatment for acute and chronic poisoning, prophylaxis, and prognosis. In addition, each chapter includes a table of other chemically related substances. This table provides data on the maximum safe

concentrations of these agents as well as toxic manifestations such as mucous membrane, skin and cornea irritation, liver and kidney damage, central nervous system irritation, narcotic effect, respiratory depression, lung irritation, and miscellaneous pharmacologic effects resulting from poisoning by these substances.

The appendix includes a listing of mechanical resuscitation equipment arranged alphabetically according to manufacturer. The monograph listing each piece of apparatus includes a diagrammatic picture of the equipment, operating instructions and warning signals, the position and care of the patient during resuscitation, use of accessories with the equipment, and the maintenance, cleaning and testing of the equipment.

The author's objective—to provide a concise summary of the diagnosis and treatment of clinically important poisons—has been aptly fulfilled in the Handbook of Poisons. The handbook is a valuable contribution to the subject of accidental poisoning and would be a useful addition to the hospital pharmacy library.

JOANNE BRANSON

THE AMERICAN DRUG INDEX 1957. By Charles O. Wilson, Ph.D. and Tony Everett Jones, M.S. Published by J. B. Lippincott Company, Philadelphia. 5½" x 8¼", 650 pages. Price $5.00.

One of the most useful references on pharmaceutical products, The American Drug Index contains an alphabetical listing of drugs, with extensive cross-indexing, by their generic, trade and chemical names. The first edition of this book appeared in 1956 (see *Bull. Am. Soc. Hosp. Pharm. 13*:144, Mar-Apr., 1956), and it was hoped at that time that the authors would make this an annual publication. Apparently this is their intent. The 1957 edition contains almost 100 additional pages and includes many pharmaceuticals which have been on the market only a matter of months. The new edition is a wise investment for the busy pharmacist trying to keep abreast of the numerous new products today.

JOANNE BRANSON

CLINICAL TOXICOLOGY OF COMMERCIAL PRODUCTS, by Marion N. Gleason, Robert E. Gosselin, M.D., Ph.D., and Harold C. Hodge, Ph.D., D.Sc. Published by Williams and Wilkens Company, Baltimore. 1957. 1160 pages. Price $16.00.

The frontispiece in the book is entitled "How to Use This Manual." Therein lies the key to the proper utilization of the vast amount of information compiled in this book. In the treatment of acute poisoning time is of the essence. The hospital pharmacist, if he is to be depended upon to provide toxicological information to the physician, must assume the responsibility of understanding thoroughly the organization of the material in *Clinical Toxicology of Commercial Products* before an emergency arises.

This reference book is divided into seven main sections. The first section deals with First Aid and General Emergency Treatment (pink section). This section outlines in sequence the general emergency procedures and precautions required in all cases of acute poisoning from the first phone call to the final disposition. Of particular interest and importance to the hospital pharmacist is a table of drugs useful in the treatment of chemical poisonings. This table includes under various drug categories two separate lists of drugs—those of high priority and those of lower priority.

The second section (blue) is an Ingredients Index. It contains over 1,000 entries of chemical substances alphabetically arranged which are commonly found in commercial products used in and around the home and farm. Listing of these chemical substances is in a table form. The first column lists the substance and synonym or principal ingredient. The second column lists the toxicity rating. This rating ranges from No. 1 which represents a practically nontoxic substance to No. 6 which is regarded as a super toxic agent. Toxicity ratings are useful devices for designating the lethality of bulk products. It is a provisional classification and should never be treated as a constant or a known value. The third column includes comments and reference congeners.

Section III (white) is a therapeutics index. It summarizes clinical and experimental data on 68 compounds or classes of compounds. These compounds are called reference congeners in Section II because each typifies toxicologically a group of related substances. Ideally, all substances having the same reference congener are chemically related and produce similar toxic effects by biochemically related mechanisms, so that one treatment regimen is appropriate to all. A compound may differ from its designated congener, both qualitatively and quantitatively; still, the device of a reference congener is a reasonable attempt to coordinate, correlate and record succinctly tremendous amounts of toxicity data. Presentation of data in Section III for each compound or class of compounds is as follows: (1) Toxicology, (2) Symptomatology, (3) Treatment and (4) Laboratory. Under each compound the authors have presented very well the purpose of reference congeners—essential toxicity data condensed succinctly.

Section IV is entitled Supportive Treatment in Acute Chemical Poisoning. This section describes techniques of supportive treatment with particular emphasis on problems frequently encountered in clinical toxicology. The material is presented as a series of topics under the relevant organ system. Functional pathology is briefly outlined, but emphasis is placed on therapy and the techniques of therapy.

Section V (yellow) includes a Trade Name Index of over 15,000 products which might be ingested accidentally or suicidally. Each product is listed by trade name; its category of use is indicated and the manufacturer's name is given. Ingredients of a large number of products are supplied, with asterisks placed after those ingredients which are expected to be responsible for toxic effects. These ingredients can be referred to in Section II, Ingredients Index which then refers you to the reference congener in Section III. For each toxic ingredient and by inference for every product in which this ingredient is starred, Section II outlines a possible and, as closely as can be predicted, the probable toxic syndrome and by suitable reference to Section III, directs attention to an appropriate program of treatment.

General Formulations is the title of Section VI. In alphabetical order are listed several hundred typical or representative formulas for various types of products and preparations commonly found in households and on farms. These formulas are offered when ingredients and composition of a product are not listed in the Trade Mark Index, Section V. These formulas serve only to orient the physician about (1) the kinds of

materials usually employed, (2) highly toxic components, and (3) percentage content of the toxic component. The table of contents in this section contains a comprehensive cross-index of the common name, category of use, and type of product responsible for the poisoning. The page number refers to a statement of composition of the product with one or more typical formulas and a list of ingredients with percentage content. Next to the typical formula is listed the toxicity rating to assist the physician in making a prognosis when his patient has ingested some product for which the composition is unobtainable. Again, starred ingredients may be found in the Ingredients Index, Section II which lists a reference congener provided in the Therapeutics Index, Section III. In addition to the formulas under each category title there is a second list headed "may contain." On occasion, data may be found here to explain a puzzling reaction.

The last section includes the names and addresses of all manufacturers of products appearing in the Trade Name Index. The list is provided for convenience to those who wish to phone or write for further information regarding specific products.

This reference volume adequately fulfills the need to make urgently needed information immediately available. *Clinical Toxicology of Commercial Products* is a significant contribution for physicians, pharmacists, and those concerned with preventing death from chemical poisoning.

CLIFTON J. LATIOLAIS

THE MERCK MANUAL OF DIAGNOSIS AND THERAPY, by Charles E. Lyght, Editor, along with an Editorial Board. Ninth Edition. Cloth, thumb-indexed. Published by Merck & Company, Rahway, N. J. 1956. 1870 pages. Price $6.75; DeLuxe edition with Cordoba Fabrikoid cover, gold edges pages and tooling, $9.00.

The new *Merck Manual*, now in its ninth edition, again offers physicians and pharmacists a ready source of information in regard to diagnosis and treatment. Published since 1899, this pocket size reference has become a classic in the field. More than 100 leading clinicians in the United States, Canada, and abroad served as consultants for this new edition, the contents of which have undergone significant revisions.

Divided into three principal parts, the Manual includes twenty sections covering a description of diseases and major symptoms in the specific fields of practice. Each section is thumb-indexed for the convenience of quick reference, and has a separate index. Of particular interest to the practicing pharmacist is the list of more than 1,600 prescriptions embodying the most up-to-date medicinal advances.

The second part of the Manual includes eight sections devoted to special bedside procedures including clinical, preoperative, postoperative, and office laboratory. The index makes up the third part of the book.

This up-to-the minute reference giving attention to latest therapeutic advances is a significant reference for the hospital pharmacist as well as physicians.

GLORIA N. FRANCKE

YEAR BOOK OF DRUG THERAPY, 1956-1957 series. Edited by Harry Beckman, M.D. Published by Year Book Publishers, Inc., Chicago, Ill. 8" x 5½", 514 pages. Price $6.75.

OF REVIEWING

It cannot be supposed that book reviewing touches only authors and publishers. It is good for the reviewers and thus extends the influence of the journal to the effects upon the circles of the reviewers. To be forced to read critically, to collect one's wits, to exercise discrimination, to summarize and compare, to get down on paper something well and succinctly expressed (a difficult and rarely accomplished feat)—these make arduous demands on a man's higher faculties. Such activity keeps the mind supple, sharpens the sense of responsibility, and might ultimately teach him who engages in it to write.

WILLIAM B. HAMILTON
in Fifty Years of the South Atlantic Quarterly (Duke)

The Year Book of Drug Therapy is one of 13 Practical Medicine Year Books published annually, and contains abstracts of articles published in various professional journals between August 1955 and August 1956.

New developments in the field of drug therapy are abstracted under such headings as: Allergic Disorders; Chest Diseases; Corticotropin and the Cortisones; etc. New uses of known drugs, occasional reports on drugs not yet commercially available, and specific therapy with familiar drugs are some of the types of information in this book.

1957-58 BLUE BOOK. Published by American Druggist Blue Book, 250 West 55th Street, New York 19, N.Y. 712 pages. Price $8.00.

The 1957-58 American Druggist Blue Book, published February 1957, lists a total of 172,340 products, and includes 74,829 price changes from last year's edition. In addition, two new symbols have been added to this edition: one designating "Former 'Rx only' products which may now be sold over-the-counter," and the other marking a "Narcotic product for which oral Rx's are permitted in certain states." These symbols are in addition to the five used in former editions, and which include: Fair trade minimum, Narcotic product, "Rx only" product, Exempt narcotic, and Needs refrigeration.

The new Blue Book also includes reference articles on various topics such as first aid items for the medicine cabinet, excise tax data, Latin words and phrases, etc. An alphabetical index of 7,200 manufacturers is included in the back.

ASHP affiliates

Southern California Society

Forty-three members and guests were present for the March 22 meeting of the Southern California Society of Hospital Pharmacists. The meeting was held at the Huntington Memorial Hospital in Pasadena where Miss Emily Alekna is Chief Pharmacist. Business transacted included reports from the Chairman of the Professional Relations Committee, the Membership Committee, and the Editor of The Bulletin. Also, Mr. Charles Towne, speaking on future programs, announced plans for the April 10 meeting which was scheduled at the County Hospital in Los Angeles.

Plans for a Pfizer Seminar which is to be held in the fall were also outlined. Announcements were made regarding the employment service and current legislation affecting pharmacy in California.

The program included a symposium on hospital pharmacy projects being carried out currently in hospitals in the southern California area. Among the projects reported on were the following: The Control and Investigation of New Drugs, by Mr. Gerald Kramer of the Veterans Administration Hospital; The Improvement of Barium Suspension for Radiological Use, by Mr. Joseph Beckerman; and The Preparation of a Sterile and Stable Solution of Urea for Use in Edema Problems, by Mr. Jack Heard.

"Body Fluid Balance, Electrolytes and their Preparation," was the subject covered at the April 10 meeting of the Southern California Society. The principal speakers included Dr. Morton Maxwell of the U.C.L.A. Medical Center and Dr. C. S. Kleeman, Chief of Metabolic Service at the Veterans Administration Hospital; and Dr. Arthur Cherkin of the Baxter Laboratories. The discussions were followed by a panel discussion moderated by Dr. Orville Miller of the School of Pharmacy at the University of Southern California. Dr. Miller summarized the discussion and stated that the development and use of electrolytes in treating infantile diarrhea might be termed as of comparable significance to the discovery of antibiotics.

Greater St. Louis Association

The March meeting of the Hospital Pharmacists' Association of Greater St. Louis was held at the Deaconess Hospital with Sister Frieda Ziegler, Chief Pharmacist, as hostess.

In addition to reports and routine business, Sister Frieda reported on the work of the Projects Committee which included a study of Blue Cross coverage of drugs. She distributed a list of "non-benefit drugs" which was of general interest to the group. She also announced a program outline which can be followed in an effort to prevent accidental poisoning.

During the business session, the St. Louis group voted to change their Constitution and By-Laws to state that "Associate members shall consist of those who are engaged in hospital pharmacy, or who have been engaged in hospital pharmacy."

The St. Louis group met at the office of McKesson & Robbins, Inc. on April 9 at 8:15 P.M. The business session included committee reports and election of officers for the new year. Mrs. Florence Mueller, Barnes Hospital, was elected President. Other officers include *Vice-President,* Joseph Guller, St. Joseph's Hospital, St. Charles, Mo.; *Treasurer,* Sister Mary Beatrice, O.S.F., St. Anthony's Hospital; and *Secretary,* Arnold J. Dellande, St. Louis Chronic Hospital.

Following the meeting, members of the McKesson & Robbins sales force were introduced and short talks presented. Also, the ASHP pins which have been made available through McKesson & Robbins to all members of the Society, were distributed to members of the Hospital Pharmacists' Association of Greater St. Louis.

Ohio Society

The twenty-third annual meeting of the Ohio Society of Hospital Pharmacists was called to order at 9:00 A.M., Tuesday, April 2, 1957 by the President, Robert Crocetti, at the Hotel Cleveland, Cleveland, Ohio.

After a welcoming address by the President, Dr. Lloyd Parks, Dean, College of Pharmacy, Ohio State University, Columbus, Ohio, discussed the recruitment materials and possibilities available in obtaining more students of pharmacy, so that the acute shortage of professional help can be overcome.

Mr. Russell Lovell, Director of Pharmacy Services, Akron City Hospital, Akron, Ohio, whose speech was entitled "Hospital Can Help Too," presented the program of the Akron Society of Hospital Pharmacists in inviting pharmacy students to tour Akron hospitals and the role of the hospitals in obtaining publicity, supplies and accommodations for the participants.

At 12:00 the meeting adjourned for lunch in the Rose Room, courtesy of the Charles Pfizer and Sons Company.

After lunch, Mr. Clifton Latiolais, Assistant Director, The Audit of Pharmaceutical Service in Hospitals, Ann Arbor, Michigan, discussed the study now being carried out under a grant from the U. S. Public Health Service. He also brought greetings from the American Society of Hospital Pharmacists, and announced that the 1957 Harvey A. K. Whitney award given annually by the Michigan Society of Hospital Pharmacists, will be presented to Sister Mary John, R.S.M,. Chief Pharmacist of Mercy Hospital, Toledo, Ohio, at a dinner on April 29, 1957 at the Statler Hotel, New York.

Mrs. Jean Sickafoose, Chief Pharmacist, Aultman Hospital, Canton, Ohio, spoke on "Coordination of State Aims with the National Program." Among the ideas expressed were the following:

1. More contact between members, perhaps by reactivating fall meetings.

2. Recruitment of students to pharmacy.

3. Formation of a Planning Committee.

4. Publication of a Bulletin.

5. Presentation of a copy of the O.S.H.P. Constitution to every member.

6. Development of special projects.

Tuesday evening at 7:30 P.M. a panel on Hospital Pharmacy Problems was held at St. Vincent's Charity Hospital.

On Wednesday, April 3, after breakfast, through the courtesy of E. R. Squibb and Sons, Inc., Mr. Norwood Meyer, Manager, Market Research Department, Parke Davis & Company, Detroit, Michigan, spoke on "Industries' Stake in the Matter."

Following this, Mr. Theodore A. Livingstone of American Casualty Company, Reading, Pa., discussed the "Legal Aspects of Hospital Pharmacy Practice-Insurance." He stated that, in general, reasonable care must be practiced—in the case of hospital pharmacy, reasonable care means *highly* reasonable care. He also stated that in Ohio the courts have, up to the present time, held the employer liable for the acts of his employee.

At 11:00 A.M. on April 3, the business meeting was convened. The minutes of the last meeting were read and approved. The Treasurer's report was read and accepted.

The following resolutions were adopted:

1. That the new President, when appointing committees, appoint a special committee or commission to assist her in considering all possible ways and means of strengthening and further activating the Ohio Society; and that the members be now requested to offer any other ideas and suggestions, in addition to those written yesterday, to be referred to this special commission for study and appropriate action.

2. That $200.00 be forwarded immediately to the American Pharmaceutical Association as a contribution to the A.Ph.A. Building Fund.

3. That McKesson be thanked for its contribution of ASHP pins to all members.

4. That E. R. Squibb & Sons, Inc. be requested to channel radioisotope information to pharmacists, especially hospital pharmacists, and that copies of this letter be sent to the ASHP, the Division Director and Peter Solyom, University of Chicago Clinics, 950 E. 59th Street, Chicago 37, Ill.

5. That letters of thanks be sent to program participants who are not members of the O.S.H.P.

6. That a letter of appreciation be sent to the Ohio Hospital Association for the help received in planning our meeting.

7. That the historical report of O.S.H.P. be brought up to date and sent to the ASHP Committee on Historical Records.

8. That the Special Planning Committee consider issuing a loose-leaf booklet containing the Constitution of O.S.H.P. and the names of the officers and committees.

Under new business, the Akron Society of Hospital Pharmacists invited the O.S.H.P. to attend their Decennial celebration in the fall. After installation of the new president, Sister Mary Florentine, she asked for discussion. The following resolution was adopted: That the O.S.H.P. accept the invitation of the Akron Society of Hospital Pharmacists to hold a fall meeting, in conjunction with their celebration in Akron, Ohio.

The meeting was adjourned at 5:00 P.M.

In addition to Sister Mary Florentine, Mt. Carmel Hospital, Columbus, Ohio, who was installed as President of the Ohio Society, the following other officers were elected: *President-Elect,* Robert Lawson, Springfield City Hospital, Springfield, Ohio; *Vice-President,* Pat Murphy, Jewish Hospital, Cincinnati, Ohio; *Treasurer,* Theodore Mink, Akron General Hospital, Akron, Ohio; and *Secretary,* Eugene Hovis, Massillon City Hospital, Massillon, Ohio.

Colorado Society

The Colorado Society of Hospital Pharmacists has recently organized and plans to affiliate with the national group. Officers of the Colorado Society include *President,* Samuel Kohan, Denver General Hospital, Denver, Colo.; *Vice-President,* Ellsworth West, Glockner Penrose Hospital, Colorado Springs, Colo.; and *Secretary,* Margie Gaasch, St. Anthony Hospital, Denver, Colo.

At the February 19 meeting of the Colorado Society, the group heard a panel discussion on "Pharmacy and Nursing Service Relationship." The panel included the Surgical Supervisor, the Night Supervisor and the Supervisor of Obstetrics and Pediatrics, all at the Denver General Hospital where the meeting was held.

At the March 19 meeting of the Colorado Society, also held at the Denver General Hospital, the group discussed "Prescription Pricing." Some of the table-type methods of computing prices for prescriptions were reviewed and a general discussion followed. Also included on the program was a discussion on "Generic Nomenclature,'" by Mr. Ellsworth West. He distributed papers on the subject which he had used at a recent El Paso County Medical Association meeting.

During the business session, announcements were made regarding the national Convention of the American Pharmaceutical Association and affiliated organizations and plans for the 1957 Institutes on Hospital Pharmacy.

Utah Society

The February meeting of the Utah Society of Hospital Pharmacists was held at the Latter Day Saints Hospital in Salt Lake City. Hosts included Mrs. Nellie Vanderlinden, Chief Pharmacist, John D. West, and Mrs. Gayle Barrett. During the evening those in attendance had an opportunity to visit the new pharmacy department in the hospital.

The principal speaker for the February meeting was Dr. E. A. Swinyard from the University of Utah School of Pharmacy where he is Professor of Pharmacology. Dr. Swinyard spoke on the new tranquilizing drugs.

Members of the Utah Society met at the Thomas D. Dee Memorial Hospital in Ogden for the March Meeting. New members were introduced and during the business session, an invitation from the Utah Pharmaceutical Association to participate in the annual state convention was presented. Sister Mary Rebecca, O.S.B., was asked to represent the Utah Society of Hospital Pharmacists.

Illinois Society

Members of the Illinois Society of Hospital Pharmacists met on March 12 at the University of Chicago Clinics. Following the business session and announcements, those attending were divided into three groups for workshop sessions covering parenteral solutions, in-

ventory control, and pricing. After these separate sections, the entire group met to hear reports from the moderators of each group.

The April 9 meeting of the Illinois Society was held at the St. Clair Hotel. The speaker for the evening, Dr. Roy Brener, discussed "Human Relations and Communications," explaining the importance of human relations in dealing with situations daily.

Recently elected officers of the Illinois group were introduced including *President,* Winston Durant, University of Chicago Clinics; *Vice-President,* Joseph Oddis, American Hospital Association; and *Council Members,* Dwight Deardorff. University of Illinois Hospital, and John Selak, University of Chicago Clinics. Mr. Ed Hartshorn, Evanston Hospital, was named the delegate to the 1957 Annual Meeting of the ASHP.

Oklahoma Society

A film entitled "An Aid to Antibiotic Therapy," was presented at the February 20 meeting of the Oklahoma Society of Hospital Pharmacists. The film was made available through the courtesy of Chas. Pfizer Laboratories and it showed methods in which the laboratory tests can determine the sensitivity of antibiotics, thus making it possible to determine which antibiotic will give the patient the best results.

During the business session communications were presented and announcements made. Sister Teresa noted that the Seventh Annual Seminar of the Oklahoma University School of Pharmacy was to be held on March 15 at the Lockett Hotel in Norman.

Greater Kansas City Association

Sixteen members were present for the February 13 meeting of the Society of Hospital Pharmacists of Greater Kansas City. The meeting was held at St. Joseph Hospital with Mr. Charles Loomis, President, presiding.

Reports were received and the tentative program for the hospital pharmacy institute, to be held in conjunction with the Midwest Hospital Convention, was presented.

Miss Sue Jenkins, Executive Secretary of the Kansas City Area Hospital Association, was the principal speaker for the March 13 meeting of the Society of Kansas City. Miss Jenkins briefly outlined the history of the organization and its functions and invited the hospital pharmacists to become an affiliated organization of the Kansas City Area Hospital Association.

Northern California Society

At the February 12 meeting of the Northern California Society, the guest speaker was Dr. Richard C. Smith. He discussed "Background Experiences in Egypt," and illustrated his talk with slides. The discussion was followed by a question and answer period.

During the business session membership chairman, Milly Chin, introduced three new members, including Bonnie Palmer Loken, St. Luke's Hospital, San Francisco; Grace Youngberg Slater, Palo Alto Hospital, Palo Alto; and Alfred R. Vernon, University of California Hospital, San Francisco.

Miss Clara Henry, Chairman of the ASHP Committee on Economic and Household Poisons, reported on activities of the national Committee and announced establishment of a poison control center in the Bay Area.

The March 6 meeting of the Northern California Society was held jointly with the Northern California Branch of the American Pharmaceutical Association. This was a dinner meeting at which A. Ph.A. President, John A. MacCartney, was the principal speaker.

Northeastern New York Society

Members of the Northeastern New York Society of Hospital Pharmacists met at the McKeon Staff House of Leonard Hospital in Troy, on February 14. Miss Lucy Manvel, Chief Pharmacist, acted as host. Following a dinner, the group held a business session at which time final plans were made for the Hospital Pharmacy Seminar scheduled during the next month and plans for participation in the Annual Meeting of the ASHP in New York City.

Approximately 175 people attended the Hospital Pharmacy Seminar which was sponsored by the Northeastern New York Society in cooperation with the Albany College of Pharmacy and Pfizer Laboratories. Representatives were present from seven chapters of the ASHP and other attendees included administrators of four of the major hospitals in the area, four directors of nursing services, fifteen chief pharmacists, two deans of colleges, and three presidents of affiliated chapters of the ASHP. Mr. Leo F. Godley, then President-Elect of the ASHP, was one of the principal speakers. In addition to bringing greetings from the SOCIETY and moderating a "Hospital Pharmacy Forum," Mr. Godley spoke on "The Road Ahead for Hospital Pharmacy" at the dinner meeting. Among the subjects covered during the one day seminar were: Problems of Prepackaging, Labeling, and Control of Medications; Hospital Group Insurance as Related to Drug Charges; Advances in Cancer Research; Effective Communications for Hospital Pharmacists; The Use of Plastics in Hospital Pharmacy; and the Nurse as a Pharmacist.

Greater New York Chapter

Mr. Robert Bogash, Director of Pharmacy Service at the Lenox Hill Hospital in New York City, was the guest speaker for the March 26 meeting of the Greater New York Chapter of the ASHP. The meeting was held at St. Mary's Hospital in Brooklyn with Sister Mary Etheldreda and Sister Mary Angeline as hostesses. Mr. Bogash spoke on "Newer Antiseptics and Correction of the Old Concept of Antiseptics."

During the business session plans for the Annual ASHP meeting were discussed with particular attention to arrangements for Sister pharmacists attending.

Cincinnati Society

Officers of the Society of Hospital Pharmacists of Greater Cincinnati for the 1957-58 term are as follows: *President,* Pat Murphy, Jewish Hospital, Cincinnati; *Vice-President,* Robert Erion, Veterans Administration Hospital, Cincinnati; *Secretary,* Mrs. Christine Reinhardt, 4345 Ashland Avenue, Norwood 12, Ohio; and *Treasurer,* Elizabeth Lynch, 3775 Drakewood Drive, Cincinnati.

Rhode Island Society

The Rhode Island Society of Hospital Pharmacists has adopted a special project which will be devoted to an active Committee on Accidental Poisoning in Children. This Committee will work with other public health agencies in presenting speaking assignments, pub-

licity and prevention. The President appointed the Committee which is to be headed by Anthony Longo.

The Rhode Island Society met on February 8 at the McKesson & Robbins Auditorium in Providence. Business transactions covered reports from committee chairmen and plans pertaining to plans for the pharmacy section of the New England Hospital Assembly which is to be held in March.

The Rhode Island Society also voted to award a $25.00 gift to an outstanding senior student at the Rhode Island College of Pharmacy. The individual to receive the award will be chosen by the pharmacy department of the college.

Southeastern New York State Chapter

Dr. Parker Van Ammee of the Memorial Hospital, New York City, was the principal speaker at the March 27 meeting of the Southeastern New York State Chapter of the ASHP. The meeting was held at The New York Hospital. Dr. Van Ammee spoke on "Electrolytes," covering the normal electrolyte balance of the cells and extracellular fluid, with particular reference to the results when the balance is disturbed.

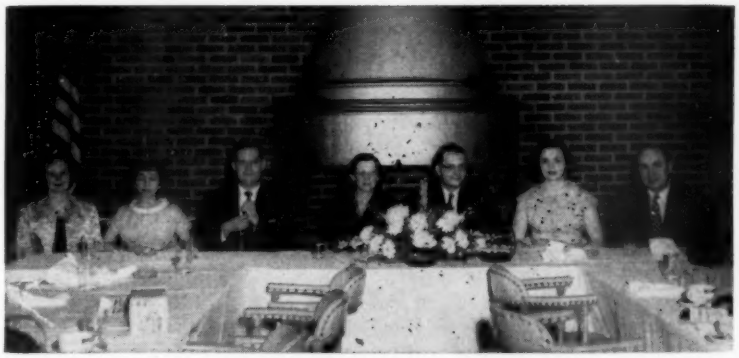
During the business session the formal acceptance of the Southeastern New York State Chapter as an affiliate of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS was read. Mr. Bogash, as a member of the ASHP Executive Committee, presented greetings on behalf of the national organization.

Reports were received on the status of membership and Miss Anna Grosso, chairman of the local committee for the Annual Meeting of the ASHP, was present to outline plans for entertainment.

Election of officers was held and those presently in office were re-elected. These include *President,* Harold Neham; *Vice-President,* Goldie Goldman; *Treasurer,* Robert Bogash; and *Secretary,* Leo Blackman. Mr. Harold Neham was appointed delegate to the ASHP Annual Meeting.

Western Pennsylvania Society

Establishment of a Pharmacy Procedural Manual was the topic of discussion at the February meeting of the Western Pennsylvania Society of Hospital Pharmacists. Sister M. Francine, Chief Pharmacist at St. Francis General Hospital in Pittsburgh, explained how the Manual at her institution had been developed and enumerated its many advantages.



Annual Banquet of the Western Pennsylvania Society. Seated left to right: Kathleen Hvozdovich, Treasurer; Natalie Certo, Secretary; Gerard Wolf, President; Gloria Francke, Secretary of the ASHP; Don E. Francke, Chief Pharmacist at University Hospital, Ann Arbor, Mich.; Anne Keane, Banquet Chairlady; and James Sandala, Vice-President.

At the March meeting of the Western Pennsylvania Society, Mr. Russell Lovell, Chief Pharmacist at Akron City Hospital in Akron, Ohio, was the principal speaker. He discussed the annual student project which is conducted by the Akron Area Society.

The Western Pennsylvania Society was honored by the presence of Dr. and Mrs. Don E. Francke at its Annual Banquet held at the Webster Hall Hotel in Pittsburgh on May 22. Dr. Francke discussed the need for the pharmacist to render service to the hospital and Mrs. Francke spoke of the need for cooperation between the national SOCIETY and the local groups in order to achieve success in mutual projects.

Massachusetts Society

Mr. T. J. Walker, District Supervisor of the U. S. Bureau of Narcotics, was principal speaker at the March 27 meeting of the Massachusetts Society of Hospital Pharmacists. The meeting was held at the Statler Hotel in Boston with the Ciba Pharmaceutical Company acting as host.

Northeastern New York Society

The Northeastern New York Society of Hospital Pharmacists conducted a meeting on April 25 on "Laws Pertaining to Hospital Pharmacy." The following men appeared on the panel: Dr. Francis J. O'Brien, Dean, Albany College of Pharmacy, as Moderator; Austin M. Johnson, Secretary, New York State Board of Pharmacy; Col. Frank J. Smith, Chief, Narcotic Control Section, Department of Health, New York State; and John Munson, District Manager, Hoffman La Roche Laboratories. The meeting, conducted at the newly constructed Administrative Building, New York State Department of Health, was presided over by Louis P. Jeffrey, President, Northeastern New York Society of Hospital Pharmacists.

Oklahoma Society

Mr. J. C. Cobb, Secretary of the Oklahoma State Board of Pharmacy, was the principal speaker at the March 20 meeting of the Oklahoma Society of Hospital Pharmacists. The meeting was held at St. Anthony Hospital, Oklahoma City, with Sister Mary Teresa presiding.

Mr. Cobb discussed the editorial which had appeared in the *Southern Pharmaceutical Journal* under the title of "Regulations for the Practice of Pharmacy in Hospitals." He indicated that the State Board of Pharmacy should have jurisdiction over pharmacy practice in hospitals and he asked the Society to assist him in working out regulations for pharmacy practice in hospitals.

The May meeting of the Oklahoma Society of Hospital Pharmacists was held at St. Anthony Hospital with 21 members present.

The guest speaker, Dr. Edward Grinnell from the Research Laboratories of the Oklahoma Medical School, discussed research in the cardiovascular field.

During the business session, plans were made for a luncheon to be held in conjunction with the Convention of the Oklahoma Pharmaceutical Association meeting in Oklahoma City, May 8. Mr. Robert E. Abrams, Executive Secretary of the American College of Apothecaries, was to be the principal speaker.

Wisconsin Society

The February meeting of the Wisconsin Society of Hospital Pharmacists was held at St. Francis Hospital in Milwaukee on the 15. Mr. Paul Idzikowski and Sister Liguoria, pharmacists, welcomed twenty-two guests. After refreshments the group was divided into two sections for a tour of the hospital.

St. Francis is divided into eight floors. Specific things which might be of interest were: a water still adjacent to and a part of the Pharmacy, Central Supply next to Surgery, surgical rooms individually and completely equipped with necessary solutions and sutures, custom-made record files (fashioned after those in the Chicago Research Institute) in the Medical Library, "Nurse Saver" system installed on the floors, the vast amount of stainless steel utilized throughout the hospital, and the wonderful feeling of friendliness, of helpfulness and of service which is impregnated throughout the entire institution by the Franciscan Sisters.

Members of the Wisconsin Society met at Mt. Sinai Hospital for the March 29 meeting. Mr. L. Tousman was host to twenty-two guests. The program included a discussion on "Malpractice Insurance.'" Particular attention was given to the status of the pharmacist in the hospital with regard to malpractice insurance in the state of Wisconsin.

During the business session the group considered the possibility of holding a seminar not to be sponsored by a company. Other business included plans for sending a delegate to the ASHP Annual Meeting, the appointment of a hospital pharmacist to the State Board of Pharmacy, and a proposed change in the Constitution and By-Laws so that members can vote by mail.

Philadelphia Hospital Pharmacists

The Philadelphia Hospital Pharmacists' Association has developed a "Code for Detailing,'" which is being used as a model and has been submitted to member hospitals of the Philadelphia Hospital Council as the Guide.

At the April 16 meeting of the Philadelphia Hospital Pharmacists, Mr. Carl Mayo, Chairman of the Committee on Teaching Programs by Hospital Pharmacists, presented his committee report which was the result of a questionnaire which had been mailed to 90 hospitals. Results of the 27 hospitals responding were revealed, showing that hospital pharmacists are carrying on numerous extra curricular and other civic activities. The recommendations of the committee are as follows:

1. That a determined effort be made to poll our entire membership to the end that all extra-curricular phases of the entire membership be listed.

2. That the various subjects discussed in the questionnaire be condensed into concise and inclusive subject titles.

3. That the Association establish a definite educational program in related and civic fields of endeavor. This program is to consist of dissemination of information and knowledge of import (of whatever nature) to the membership regarding regular duties and responsibilities and in related extra-curricular activities.

4. That the Association establish a permanent committee on teaching programs which shall execute the above mentioned (section 3) duties. The establishment, policies, and workings of such a committee are to be developed by the membership.

5. That these generally unrealized and/or unknown abilities and qualifications of our hospital pharmacists be encouraged, developed, and publicized through proper channels.

Houston Area Society

The February meeting of the Houston Area Society of Hospital Pharmacists was devoted to discussing activities of the National Organization. Miss Adela Schneider spoke on "What the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS is Doing.'" Sister Mary Nathy spoke on the "Audit of Pharmaceutical Service in Hospitals," and Mr. Henry Beard discussed the Research Grant program which is being developed through the National Organization.

The Houston Area Society has completed a history of the organization which is being turned over to the Chairman of the ASHP Committee on Special Projects.

Mr. Milton Skolaut, who was then serving as Vice-President of the ASHP, was the principal speaker for the January meeting of the Houston Area Society. He discussed the services being performed at the Clinical Center of the National Institutes of Health and his talk was supplemented with slides.

Texas Society

The following resolution was passed at the January meeting of the Texas Society of Hospital Pharmacists:

Whereas Chapter IX, Article I of the By-Laws of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS requires that all active (voting and office-holding) members of the affiliated chapters shall be members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS; and

Whereas a recent survey by the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS of the membership in affiliated chapters shows that a number of Texas Society members do not meet this requirement; now therefore be it

Resolved that the Executive Committee instruct the secretary to check all new members with the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS immediately upon application in order to help correct any inconsistency in membership.

Current officers of the Texas Society include *President,* Fred Borth, Seton Hospital, Austin; *Vice-President,* James Beran, Baylor Hospital, Dallas; *Secretary,* Doris Smith, Austin State School, Austin; and *Treasurer,* Blanche Groos, San Antonio.

Michigan Society

At the March 14 meeting of the Michigan Society of Hospital Pharmacists, the principal speakers were Dr. A. B. Hayden and Dr. B. A. Corrigan who discussed "Radioactive Pharmaceuticals." Those attending also had an opportunity to tour the medical physics laboratory.

Business transacted during the meeting included the nomination for the 1957 H.A.K. Whitney Award and presentation of the report of the Committee on Nominations for officers during the coming year.

Mr. Harry Lang was appointed to represent the Michigan Society at the ASHP Annual Meeting and serve as the official delegate to the House of Delegates.

Florida Society

Officers of the Florida Society of Hospital Pharmacists include *President,* Miss Wernersbach, Mt. Sinai Hospital, Miami, Florida and *Secretary,* Miss Jean Whitmore, Box 7, Lake Placid, Florida.

as the president sees it

LEO F. GODLEY

Bronson Methodist Hospital
Kalamazoo, Michigan

Wasn't it good seeing everybody in New York? It was particularly encouraging to see so many new faces among us. It is new faces that keeps us strong; it's new faces that assure a vital interest in the future; but this new strength certainly must be attributable, in part, to the steadfast, forthright resolve of the vanguard: Scott, Francke, Whitney, Reamer, Frazier, Barnett, Sister Mary John, Stauffer . . . Didn't you see them?

Vice President Barnett remarked that not too long ago at annual meetings, there was sometimes a question of whether a quorum was present. Not so, now!

Speaking of new life and the future, I think that one of the most heartening things at the convention was the Student Section. I went in their meeting room during an executive session; the audience was sizeable and the conduct most commendable. It's a wonderful thing for pharmacy students. It ought to be required curriculum; and the A.Ph.A. should be congratulated for developing this area of activity. I noticed how impressed some other hospital pharmacists were with this student activity. We'll be hearing a lot more about it, I'll wager.

As it was suggested, I hope that all the local groups will take those committee reports that their delegates brought home and use them for program material. There is enough meat in that envelope to keep any local group satisfied for several sessions. Secretary Gloria Francke has also sent out the resolutions that were acted upon in New York and that will also add to the material for local chapter discussions.

As this page goes to press, we are thinking of the Catholic Hospital Association Institute on Hospital Pharmacy in Cleveland; and the American Hospital Association Institute on Hospital Pharmacy in Seattle. There will also be a meeting of the AHA-ASHP Joint Committee in Cleveland during the Catholic Hospital Association convention. So you see, things on the national level are certainly going strong.

Those of you who are interested in a research grant through our Research and Development Committee should write to Milton Skolaut for application forms. Milton is chairman of the committee. They have done a lot of ground work and I think we can look in that direction for some mighty interesting undertakings.

I should not forget to make special mention of the Formulary Service that Bill Heller is building up over in Arkansas. I wouldn't doubt but what Dr. Heller gets quite snowed under with monographs and the like every now and then. It would be a good idea if we would write him a cheering note sometime, especially if an idea or suggestion occurs to anyone. Getting a formulary together and planning its distribution and revision is not a small task, is it?

I've become quite interested in the Committee that Ethel Pierce is heading on professional liability insurance. Those New England people are working on an insurance program that they hope will have SOCIETY membership application. We certainly appreciate their efforts.

It will be interesting to see what our new Special Committee on Safety Procedures and Practices comes up with. Did you notice that that is a program being considered by the Section of Hospital Pharmacists of the International Pharmaceutical Federation?

Incidentally, I forget to inquire of Don Francke and Glenn Sonnedecker how many members they got from our ranks for the F.I.P. and the A.I.H.P.

I hope to see a great many of you during the year. I'd like to hear from you; and I have enjoyed the letters that have come in already. That is one way that I can feel the pulse of the membership. It's going to be good working together.

Leo F. Godley

NEWS

Beck is Candidate for A.Ph.A. Council

Allen V. R. Beck

Allen V. R. Beck, Chief Pharmacist at Indiana University Medical Center, Indianapolis, has been nominated for a three-year term on the Council of the American Pharmaceutical Association. Mr. Beck is a past-president of the SOCIETY and is well known in the pharmaceutical field. He is currently a member of the A.Ph.A. House of Delegates representing the ASHP.

Nominations for officers and council members of the A.Ph.A. were made at the Convention in New York City. All active members of the Association will receive ballots which must be returned within thirty days of the date printed on the ballot.

A complete list of the nominees for officers of the A.Ph.A. appears in the May issue of the Practical Pharmacy Edition of the *J. Am. Pharm. Assoc.*

A.H.A. - ASHP Joint Committee Meet

The Joint Committee of the American Hospital Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS met at the Hotel Statler in Cleveland on May 24. Those present included Dr. Robert R. Cadmus. Dr. August H. Groeschel, Mr. Joseph Vance, Mr. John J. Zugich, Dr. Leroy E. Bates, and Mr. Joseph A. Oddis, representing the American Hospital Association. ASHP representatives included Dr. George F. Archambault, Mr. Walter M. Frazier, Mrs. Evlyn Gray Scott, Dr. Don E. Francke, Mr. Leo F. Godley and Mrs. Gloria Francke. Mr. Paul Parker, representing the Division of Hospital Pharmacy of the A.Ph.A. and the ASHP, was also present. The Joint Committee was organized a few years ago to discuss mutual problems and recommendations for action must be approved by the parent organization before becoming effective. At the May meeting the group further considered the preparation of a hospital pharmacy manual which is to be developed by Mr. Joseph A. Oddis, Staff Representative on the Council on Professional Practice at the American Hospital Association. As various policy statements are developed by the Committee, these will be incorporated in a Manual which will serve as a guide for pharmacy practice in hospitals.

The following subjects were among those discussed during the meeting: Use of investigational drugs in hospitals; Activities of the National Pharmaceutical Council regarding alleged substitution in hospitals; Recommendations regarding the advisability of a statement on the use of the formulary system in hospitals; a report on the Audit of Pharmaceutical Service; Plans for the institutes on hospital pharmacy; use of nonprofessional personnel in hospitals; and Current legislation affecting the use of tax-free alcohol in hospitals.

Recipients of Research Grants Cited

Research in hospital pharmacy is making significant contributions to the health of the general public, according to Dr. Melvin Green, Director of Educational Relations, American Council on Pharmaceutical Education, who spoke at an Award Dinner of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS in New York City on May 1. He said the fact that hospital pharmacists are engaging in research is of great value to every member of the health team—physicians, pharmacists and nurses.

The dinner, held during the Annual Meeting of the ASHP, honored six hospital pharmacists who have been working under a newly instituted research grant program. The Annual Meeting was held in conjunction with the Convention of the American Pharmaceutical Association.

Dr. Green commented that hospital pharmacists have an opportunity to carry out research in their day-to-day practice. Further, the fact that practitioners in pharmacy also participate in research is valuable to the total profession. "All professions have the obligation of contributing to their own growth," he said. "Without this, a calling soon ceases to be a profession."

The six pharmacists engaged in research projects are: John W. Webb and Anthony N. Ciampa, Massachusetts General Hospital, Boston; Don E. Francke, University Hospital, University of Michigan, Ann Arbor; Joseph H. Beckerman, University of California Hospital, Los Angeles; Herbert L. Flack, Jefferson Medical College Hospital, Philadelphia; and Alex Berman, University of Michigan College of Pharmacy, Ann Arbor. They each received research grants from Lederle Laboratories Division, American Cyanamid Company. The grantees were selected by the ASHP's Special Committee on Research and Development with approval of the Executive Comittee. Lederle established the grant program in 1956 to support research within the defined scope of hospital pharmacy-hospital pharmacy administration, services, education or general welfare.

At the award dinner, Paul Parker, President of the ASHP, pointed up the importance of the grants to hospital pharmacists. He indicated that the recipients were carefully screened to assure that the work being supported was of the type which would have basic and long-term benefits to the furtherance of the profession.

Messrs. Webb and Ciampa received a grant for their study on "Cathode Ray Sterilization of Ophthalmic Ointments." They are studying a method for sterilizing ophthalmic ointments in standard tubes rather than in the smaller units now being used commercially. Dr. Francke was supported in his project involving the preparation of a "Selected, Annotated Bibliography on Hospital Pharmacy" which he feels will be a working one of use to all persons in the profession.

Mr. Beckerman's study deals with "Improved Barium Sulfate Suspensions" which will allow clearer x-rays by preventing flocculation. Mr. Flack's project is the "Evaluation of Chemical Sterilizing Agents for Hospital Application and Use" in which he is studying the important considerations in selecting germicides for hospital use. Dr. Berman, in his study of the "Development of the Printed Formulary from 1642 to the Present," indicated that such formularies have existed for many centuries and that the historical approach would offer more depth of understanding of their impact on hospital pharmacy.

In addition to the recipients in attendance at the dinner, guests included members of the ASHP Executive Committee, the Committee on Research and Development and the Selection Board.

on duty in the emergency room

Albumin/ CUTTER

for rapid shock therapy

Albumin should be available for emergency treatment following trauma, hemorrhage or burns because it immediately restores and maintains an effective blood volume. An intravenous infusion of 50 cc. of 25% albumin may be expected to pull 175 cc. of fluid into the circulatory system *within 15 minutes.* It would require 250 cc. of plasma or 500 cc. of whole blood to duplicate this therapeutic effect. In addition, Albumin/Cutter is salt-poor, heat-treated against the hepatitus virus, and ready for immediate use. Also indicated in: acute barbiturate poisoning, cirrhosis, cerebral edema, nephrotic syndrome, hypoproteinemia.
Available in: 50 cc. emergency kits, complete with administration equipment; 20 cc. vials.

Make sure your supply of Albumin/Cutter is ample for emergencies as well as for routine hospital administraton.

SINCE CUTTER 1897 **CUTTER** *Laboratories*
BERKELEY, CALIFORNIA

each
dose
is fresh
...for
complete
potency

FOLBESYN*

VITAMINS LEDERLE

B COMPLEX + C

Separate packaging of dry vitamins and diluent (mixed immediately before injection) assure controlled dosage. The folic acid solution is specially prepared to preserve full potency and to serve for quick solution of the dried vitamins. FOLBESYN may be conveniently added to standard intravenous solutions.

*REG. U. S. PAT. OFF.

Dosage: 2 cc. daily.

Each 2 cc. dose contains:

Thiamine HCl (B_1)	10 mg.
Riboflavin (B_2)	10 mg.
Niacinamide	50 mg.
Pyridoxine HCl (B_6)	5 mg.
Sodium Pantothenate	10 mg.
Ascorbic Acid (C)	300 mg.
Folic Acid	3 mg.
Vitamin B_{12}	15 mcgm.

Lederle

LEDERLE LABORATORIES DIVISION
AMERICAN CYANAMID COMPANY
PEARL RIVER, NEW YORK

Participants in Pre-Convention Conference on Parenteral Products. Standing left to right: Dr. Louis Gershenfeld, Eugene Barclay, and Herbert L. Flack. Seated left to right: Dan Cronin, Sister Mary Florentine.

Pre-Convention Conference on Parenteral Products

More than 100 persons were in attendance at the Pre-Convention Conference on the "Preparation of Parenteral Products by the Hospital Pharmacist," held April 27 at the Statler Hotel, New York City, sponsored by the Philadelphia Hospital Pharmacists' Association.

Presentations at the Conference included: "Relationship of Glass Composition to Stability of Formulations," by Dr. Sanga V. Subrahmanyam, T.C. Wheaton Company; "Selection of Filters," by Dr. Kenneth E. Avis, Philadelphia College of Pharmacy and Science; "Pressure Steam Sterilization," by Dr. T. B. Owen, American Sterilizer Company; "Washing of Glassware," by Eugene Barclay, Merck Sharp & Dohme; and "The Hospital Pharmacist's Responsibilities in Production of Parenterals," by Dr. Louis Gershenfeld, Philadelphia College of Pharmacy and Science.

The Conference concluded with an open panel discussion with the featured speakers, plus several hospital pharmacists and industry representatives, participating.

Victor Canaipi Dies

Victor V. Canaipi, Secretary-Treasurer of the New England Council of Hospital Pharmacists and a past president of both the Rhode Island Pharmaceutical Association and the Rhode Island Society of Hospital Pharmacists, died recently. Mr. Canaipi was a hospital pharmacist in Wallum Lake, R.I. He has been active in the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS.

Natural

Estrogens

with

LUTREXIN®

in menopause..

TREXINEST®

TABLETS

Combine the naturally occurring Equine estrogens and the new Uterine Relaxing Hormone, Lutrexin (H.W.&D. brand of lututrin)—simulating the occurrence of these hormones in nature.

TREXINEST produces prompt relief of symptoms associated with the menopausal syndrome.[1]

TREXINEST is more effective than either of its active components taken separately.[2]

TREXINEST Tablets help restore the normal balance between certain hormones, the lack of which Malleson[3] suggests may cause menopausal disorders.

1. Rezek, G. H.: Personal Communication; 2. Hannon, T. R.: Personal Communication; 3. Malleson J.: The Lancet, July 1953.

HYNSON, WESTCOTT & DUNNING, INC., Balto., Md.

H W D

Intra-VA Pharmacy Conference

Approximately thirty pharmacists from the southeastern section of the country gathered for a two-day meeting at the Veterans Administration Hospital in Durham, N. C. on March 27 and 28, 1957. The group discussed mutual problems and heard informative papers presented by physicians from the Veterans Administration Hospital, Duke University Medical Center, and fellow-pharmacists attending the meeting. Some of the subjects and speakers during the two-day session were:

"Formulation Aids," by Dean E. A. Brecht, University of North Carolina, School of Pharmacy, Chapel Hill, N. C.

"Preparation of Sterile Ophthalmic Solutions," by Arthur J. Davis, Chief Pharmacist, Veterans Administration Center, Mountain Home, Tenn.

"Research Opportunities in VA Pharmacy," by William H. Strohbeck, Jr., Chief Pharmacist, Veterans Administration Hospital, Lake City, Fla.

"Pharmacy in the Future," by I. T. Reamer, Chief Pharmacist, Duke University Hospital, Durham, N.C.

"Developments in Dermatology Therapy," by Dr. J. Iamar Callaway, Head, Department of Dermatology and Syphilogy, Duke University Hospital, Durham, N.C.

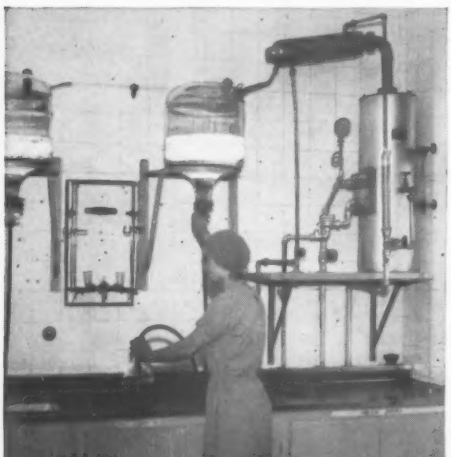
"The Use of Chelating Agents in Pharmacy," by Lloyd J. Dixon, Chief Pharmacist, Veterans Administration Center, Kecoughtan, Va.

"Interprofessional Relationship Between Pharmacy and Nursing Service," by Dorothy Flemmons, Rotating Pharmacist, Veterans Administration Hospital, Cincinnati, Ohio.

"Chemical Aspects of the Newer Drugs," by Sam Labson, Chief Pharmacist, Veterans Administration Hospital, Roanoke, Va.

"Medical Uses of Radioisotopes," by Dr. William P. Deiss, Jr., Chief, Medical Service, Chief, Radioisotope Service, Assistant Director, Professional Services for Research, Veterans Administration, Durham, N.C.

This was the sixth in a series of conferences planned for VA pharmacists. Over 150 pharmacists have participated in these meetings which are designed to provide opportunity for the discussion of educational and administrative subjects of particular interest to those practicing in VA installations.



In These Leading Hospitals BARNSTEAD Water Stills

TODAY, with expansion of central supply activities, flasking of distilled water for surgery, and new blood techniques, the modern hospital requires distilled water in greater quantities than ever before . . . and by purity standards never before considered possible.

Barnstead, the oldest manufacturer of water stills, can provide you with distilled water from ½ to 30 gallons per hour . . . and so pure, so completely sterile and pyrogen-free that it will meet all of your exacting intravenous, surgical, and blood plasma needs.

Barnstead Stills are also available in still and tank combinations, with manual and full automatic controls, accessories, and in series for Double and Triple Distillation.

VA Pharmacists Attending Intra-VA Pharmacy Conference, Durham, N. C.

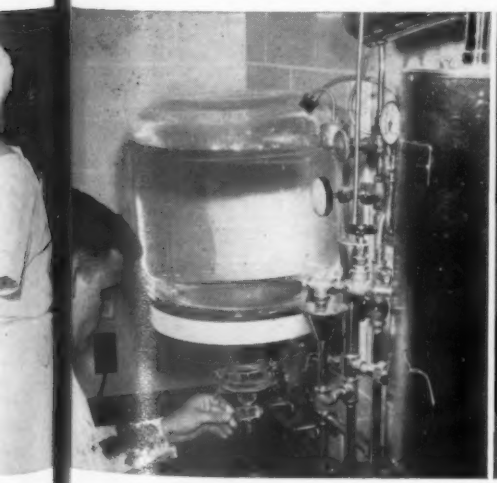
Overall plans and arrangements were made by Robert Statler from the VA Central Office, Washington. Both he and Vernon Trygstad, Director, Pharmacy Service, Veterans Administration, Washington, attended. Local arrangements were in charge of Joseph T. Christopher, Chief Pharmacist of the VA Hospital in Durham. Also participating was Archie E. Millis, formerly Assistant Director of the VA Pharmacy Service, who is now Assistant Manager of the Durham VA Hospital.

Produce the Purest Pyrogen-free Water...

Whatever your Pure Water requirements . . . and you should keep expansion in mind, Barnstead can supply you with the correct still to fill all of your Pure Water needs. In the central supply, in the pharmacy, in the solution room, and operating room — specify Barnstead for the purest, sterile, pyrogen-free water obtainable.

Write for NEW
HOSPITAL CATALOG "H"
The Latest Word in
PURE WATER EQUIPMENT

Barnstead
STILL & STERILIZER CO.
37 Lanesville Terrace, Boston 31, Mass.



Lee Memorial Hospital, Fort Meyers, Florida
St. Olaf Hospital, Austin, Minnesota
Cross County Hospital, Yonkers, New York
St. Margaret's Hospit., Montgomery, Alabama
Barr Hospital, Ukiah, California
Notre Dame Hospital, Lynch, Kentucky
St. Agnes' Hospital, Fond Du Lac, Wisconsin
Lockport City Hospita, Lockport, New York
Winter Haven Hospital, Winter Haven, Florida
Holy Cross Hospital, Salt Lake City, Utah
Bedford Health Center, Brooklyn, New York
Crossett Health Cente, Crossett, Arkansas
Girard General Hospital, Girard, Kansas
Union Health Center, New York, N. Y.
Chester Hospital, Chester, Pa.
State Home Hospital, Coldwater, Michigan
Arab Hospital, Arab, Alabama
Scott County Hospita, Oneida, Tennessee
St. Francis Hospital, Milwaukee, Wisconsin
Orange County Hospita, Orange, Texas
St. Joseph's Hospital, London, Ontario, Canada
General Hospital, Valdez, Alaska
Lakewood Hospital, Morgan City, Louisiana
General Hospital, Annapolis, Maryland
Dixie Hospital, Hampton, Virginia
Ayden Clinic, Ayden, North Carolina
N. E. Baptist Hospital, Boston, Mass.
Liberty Co. Hospital, Chester, Montana
Calais Regional Hospital, Calais, Maine
Blue Hill Hospital, Blue Hill, Maine
St. Elizabeth Hospital, Utica, New York
Alexandria Hospital, Alexandria, Virginia
Greenwood Co. Hospital, Eureka, Kansas
Mayview State Hospit, Mayview, Pa.
Hart Co. Med. Center, Hartwell, Georgia
Ill. Central Hospital, Chicago, Illinois

How does your present disinfectant compare with O-syl®

Try these yes-or-no questions:	Your present disinfectant	O-syl brand disinfectant
1. Is it tuberculocidal, as well as bactericidal and fungicidal?	_____	yes
2. Is it efficient in the presence of such organic matter as pus, blood, etc.?	_____	yes
3. Will antibacterial action persist against new contaminants as long as a week between applications?	_____	yes
4. Is pre-cleaning unnecessary?	_____	yes
5. Is it stable, even in dilution?	_____	yes
6. Is it non-toxic?	_____	yes
7. Is it non-corrosive?	_____	yes
8. Is it odorless in use dilution?	_____	yes
9. Can it be "standard" for all disinfection needs throughout the hospital?	_____	yes
10. Does a little go a long way so that it is economical* to use?	_____	yes

If you have even one "no" answer, you may want to know more about O-syl. Send for samples and booklet describing its many applications.

* It takes only one gallon of O-syl (diluted 1:100 with water) to disinfect all the floor surface in the average size 125-bed hospital. O-syl does more — costs less. Simplifies buying. Available through your hospital supply dealer.

Lehn & Fink Professional
PRODUCTS CORPORATION DIVISION
445 PARK AVENUE, NEW YORK 22, N.Y.
● T.M. Reg.

Pharmaceutical Industry Contributes to Medical Education

The ethical pharmaceutical industry contributes approximately $10,000,000 annually to medical and related schools in this country, it was revealed by Health News Institute today in commenting on an industrywide survey.

The survey was conducted by the American Drug Manufacturers' Association at the request of the Committee on Interstate and Foreign Commerce of the House of Representatives.

The $10,000,000 figure representing financial support of medical schools, the A.D.M.A. said, was "only a small proportion of the total research effort of this industry—considerably less than ten percent of the complete outlay for research."

Member firms of the association, responsible for some 90 percent of the total business carried out by the membership, replied to the survey. Returns showed that about 25 percent of the $10,000,000 is given in the form of general contributions, while 75 percent is contributed in connection with specific research grants.

Of the 25 percent donated to medical and other schools, there are no strings attached. "However, the entire amount," the A.D.M.A. said, "whether connected with specific research projects or not, may be considered applicable to the over-all operating budgets of the various educational institutions, and helps support them."

The manufacturers are increasing financial incentives to promising scientific students at the high school level and expanding their contributions to selected colleges and universities. Practically every firm in the industry has taken some positive action designed to increase student interest or promote on-the-job training of scientists. Some companies encourage further scientific study of their laboratory personnel by defraying some of the costs of continuing study.

The pharmaceutical industry supports more than 700 students in the medical and allied sciences through scholarships or fellowships, the Health News Institute said.

"The industry covers the expenses of about one student in the medical and allied sciences for every five such graduates employed," the A.D.M.A. report to the House Committee said. "This demonstrates that industry management recognizes the urgent need for training adequate numbers of doctors and scientists, and is taking constructive steps along that line.

"According to recent studies of the National Science Foundation, the drug industry spends a larger proportion of its sales dollar upon research than any other industry of comparable size. These large expenditures are made because the industry lives on medical research; to the normal business reasons must be added the humanitarian reasons for making all possible efforts to improve health and save life.

Voluntary health insurance now pays more than 25 percent of the total annual expenses for all personal health services incurred by both insured and uninsured persons in this country, Health Information Foundation reports.

SWIFT RELIEF
OF PELVIC SYMPTOMS-
FREQUENCY, URGENCY,
DYSURIA, STRAINING,
SENSATION OF
INCOMPLETE EMPTYING;
REFERRED PAIN
TO ABDOMEN, PELVIS,
LUMBOSACRAL
REGION, AND
UPPER THIGHS;
SUPRAPUBIC PAIN

These symptoms are frequently due to an unsuspected urethritis, which yields quickly to FURACIN Urethral Suppositories. Insertion of these suppositories provides gentle dilation; the anesthetic, diperodon, affords prompt and sustained relief of pain. The antibacterial, FURACIN, achieves wide-spectrum bactericidal action without tissue toxicity. Indicated for bacterial urethritis, and for topical anesthesia and prophylaxis of infection before and after instrumentation. Each suppository contains FURACIN 0.2% and 2% diperodon • HCl in a water-dispersible base. Hermetically sealed, box of 12.

FURACIN® URETHRAL suppositories
BRAND OF NITROFURAZONE

Also available: FURACIN VAGINAL SUPPOSITORIES

NEW MEMBERS

MAY 1, 1957

The following ASHP members sponsored the New Members listed in this issue of THE BULLETIN. *The officers of the* SOCIETY *and the Committee on Membership and Organization appreciate the efforts of the individuals who have encouraged New Members to join the national organizations. Sponsors will be listed along with the New Members in each issue of* THE BULLETIN.

Bailey, Leon E.
Barnett, C. B.
Barry, Joseph A.
Beck, Allen V. R.
Benka, William B.
Best, John A.
Bianculli, Italo A.
Bogash, Robert
Branson, Joanne
Briner, William H.
Campbell, John P.
Chabak, Love
Cisneros, Anna Mae
Clarke, William T.
Coleman, Anna
Cox, Perry E.
Dell, Carl M.
Durante, W. J.
Durkee, James J.
Egebrecht, Russell O.
Finegan, R. H.
Fiske, Russell H.
Flack, Herbert L.
Fladmoe, Vidar F.
Francke, Don E.
Francke, Gloria N.
Fuson, Violet
Gill, Charles W.
Hammelman, N. E.
Hartmann, Arthur
Hartshorn, Edward A.
Heard, Jack
Henry, Charles R.
Horiuchi, Arthur W.
Horne, George V.
Hufford, Edna
Jagozinski, Wanda
Jeffrey, Louis P.
Kantrowitz, Harry O.
Kirkland, Jack
Knepp, Irene C.
Kroeger, Ruth
Kurihara, Kenichi
Ladd, John W. Jr.
Lauve, Albert P.
Lord, Clifton F. Jr.
Loustalet, Edith M.
Macke, Ronald L.
Magee, Mary Ann
Mang, Herbert J.
Markovich, Joseph J.
Martin, E. J.
Mayo, Carl
Melton, Curtis
Mitchell, John
Munemori, Kikuyo L.
Murphy, John W.
Oddis, Joseph A.
Orchen, Melvin
Parker, Paul F.
Peck, Fay Jr.
Pfau, Lowell R.
Pinger, John E.
Pizzolato, Frances
Ploplis, Joseph V.
Podbur, Rubin
Ponas, John
Potter, Elsie P.
Powell, Linnea J.
Puchkoff, David
Rosen, Arthur
Russell, Miriam F.
Ruszel, Virginia
Schroeder, James B.
Schwartau, Neal
Scigliano, John A.
Scott, Evlyn Gray
Sister Anne Josephine Meracle
Sister M. Gonzales
Sister M. Roman Broeckert, O.S.F.
Sister M. Teresa
Sister Marie G. Fox
Sister Mary Ann
Sister Mary Eucheria
Sister Mary Junilla
Smith, Lawrence D.
Smith, Lewis S.
Stockert, Geraldine J.
Taniguchi, Theodore
Taylor, Laura H.
Teakell, Wanda Lee
Tiemann, Kenneth E.
Tilley, Marie R.
Tio, James
Towne, Charles
Trevis, Margaret
Webb, John W.
Wendel, D. D.
Wexlar, Benjamin J.
Whiddon, Edward L.
Williams, Vernita G.
Wright, George A.
Yearick, Virginia S.

ALABAMA

Adams, William H., Jr., 809 11th St., S.W., Birmingham
Greene, Joseph F., 753 Vanderbilt St., S., Birmingham
Holk, Glenn R., 3384 Cloverdale Rd., Montgomery
Martin, Willard D., 2017 Merrily Dr., Montgomery

ARIZONA

Neiman, Philip, 1445 E. Meadowbrook Ave., Phoenix

CALIFORNIA

Brangan, George F., 7301 Leescott Ave., Van Nuys (A)
Evans, Bradford O., 1602 E. Glenoaks, Glendale
Haddon, John R., 443 14th, Santa Monica
Johnson, Aina L., 2523 N St., Apt. 6, Sacramento
Kulik, Margaret H., 26 East Arrow Highway, Upland
Kurihara, Rokuro, 611 Vine St., Glendale
Nakamura, Mieco, 320 S. Alvarado, Los Angeles
Needham, George H., 10402 Mattuck Ave., Downey
Sakuda, Fred, 2243 Princeton Ave., Los Angeles
Vernon, Alfred R., 212 Sycamore, Mill Valley (A)
Woon, Louie, 226 Steele Lane, Santa Rosa
Wyss, Donald S., 550 Elder St., Anaheim (A)

CONNECTICUT

Hall, Judith A., Hartford Hospital, Hartford

DISTRICT OF COLUMBIA

Casale, Frank J., 5709 R St., S.E., Washington (A)

FLORIDA

Guritz, David, 9th & Boulevard, Jacksonville
Kanter, Max, 20250 N.E. 12th Ct., No. Miami Beach
Mounger, Marshall N., 19512 N.W. 7th Ct., N. Miami (A)
Owsley, Donald S., 600 E. 24th St., Hialeah
Yearick, Virginia S., 5888 S.W. 77th Terr., S. Miami

GEORGIA

Brannen, G. C. Jr., 1573 Engle Dr., Macon
Merritt, Charles W., 609 E. Washington, Thomasville

ILLINOIS

Balais, Daniel P., 1444 E. 60th Pl., Chicago
Baubkus, Zita L., 1300 So. 49th Court, Cicero
Bredfeldt, John C., 2636 Spruce St., River Grove
Cicenas, Zinnia, 6462 S. Central Ave., Chicago
Prizant, Milton S., 6208 N. Talman Ave., Chicago (A)
Tulley, Lillian V., 1354 Belmont Ave., Chicago

INDIANA

Leonard, Robert L., 505 W. 1st St., Marion

LOUISIANA

Barcenas, Rachel, 145 Elks Pl., New Orleans
Haindel, Doris O'Dell, 4321 Perrier St., New Orleans
Lescale, Melvin J., 4922 Touro St., New Orleans
Norris, Mary A., 3818 Palmyra, New Orleans
Ory, Leah Ann, 3322 Carlotta St., Baton Rouge
Parrino, Maria, 2517 Nashville Ave., New Orleans

MARYLAND

Osheroff, Boris J., Natl. Inst. of Health Clin. Center, Bethesda
Piper, Marguerite L., 4515 39th Pl., Brentwood

MASSACHUSETTS

Chandler, Robert P., 223 Aspinwall Ave., Boston
Hanley, Margaret, 824 Main St., Melrose
Holt, David H., 36 Cottage St., Mansfield
Murphy, Edward T., 245 Russell St., Everett
Zigarmi, Peter, 24 Parlin St., Everett

MICHIGAN

Pinto, Carlos E., University Hospital, Ann Arbor (A)
Williams, Horace B. Jr., VA Hospital; Pharmacy, Battle Creek

MINNESOTA

Dearman, John B., 2632 38th Ave., S., Minneapolis
Ervasti, Marilyn K., 3516 21st St., W., Minneapolis
Mornik, Arlene, 6320 Olympia, Minneapolis
Schwerman, Earl A. Jr., 1808 Fifth Ave., S. W., Rochester

MISSOURI

Bloome, Lyndal A., 655 Majesty Ct., Lemay
Fox, Thomas O., 3338A Aubert, St. Louis
Newton, Robert W., 607 Forest Court, Clayton
Smith, Arley R., 1212 E. Portland, Springfield
Wakasa, Ben S., 6183 McPherson, St. Louis

NEW HAMPSHIRE

Yenovkian, Joseph M., 212 Harrison St., Manchester

NEW JERSEY
Friedman, Allan A., 83 Chester Circle, New Brunswick

NEW MEXICO
Poprick, Michael, U. S. Army Hospital-Sandia Base, Albuquerque

NEW YORK
Burdett, Paul F., 7 Arlene Court, Pearl River (A)
Coniglio, Vincent J., 72 Crescent Drive, Albany (A)
Davis, 1/Lt. Neil M., 7206th USAF Disp., APO 223, New York
Giangrave, Paul J., 115 Rugby Ave., Staten Island
Goldberg, Raymond, 1242 Hawthorne Dr., E., Wantagh (A)
Harnish, Edwin B., 41 N. Main St., Honeoye Falls (A)
Tyson, James Noel, 3495 Bailey Ave., Buffalo
Young, Agnes G., c/o Mrs. H. Bell, 41-40 Parson's Bldg., Apt. 2-F, Flushing, L. I. (A)

NORTH DAKOTA
James, Evangeline B., 722 19th St., N., Fargo (A)
Vincent, Muriel C., Sch. of Pharm., State College Station, Fargo (A)

OHIO
Acebo, Margarete Ann, 329 E. Ford Ave., Barberton
Baird, Robert P., 6380 Youngstown-Poland Rd., Poland
Brumm, Joseph N., 2383 Overlook Rd., Cleveland Heights (A)
Dunst, John J., 174 Locust St., Akron
Jett, Quartense, 12426 Castlewood Ave., Cleveland
Mackner, Arnold F., 27031 Russell Road, Bay Village, (A)
Meresicky, Ralph J., 2019 Meriline, Dayton
Perlman, Karl P., 4037 Stonehaven Rd., S. Euclid
Schaefer, Elizabeth B., 380 Eastmoor Blvd., Columbus
Schaeffer, William H., 3946 N. Fordham Pl., Cincinnati (A)
Wheeler, Nancy W., 10 Stanridge Rd., Chagrin Falls

OKLAHOMA
Hall, Katie Lee, 1125 North Lee, Oklahoma City
Kearns, Hugh A., Ft. Gibson
Wilson Sam E., 1400 N. E. 46, Oklahoma City (A)

PENNSYLVANIA
Andrews, Nicolina R., 1824 S. Alder St., Philadelphia
Antokol, Bernice, 425 S. 43rd St., Philadelphia
Cleveland, Charles B., 543 Linmar Extension, Aliquippa
Koff, Harry E., 1619 Nedro Ave., Philadelphia
Livengood, Clarence W., 904 Tener St., Johnstown
Mantini, Thomas A., 2031 So. Etting St., Philadelphia
Monticelli, Nazareno E., 920 N. 64th St., Philadelphia (A)
Newland, Charles B., 1252 Evergreen Ave., Pittsburgh
Rigano, Charles, 4147 Dungan, Philadelphia
Sandala, James E., 3340 Sunview Dr., Pittsburgh

RHODE ISLAND
Colucci, Dominic, R.F.D., Harris Ave., Lincoln

TENNESSEE
Bratten, Jane Hughes, 4-A Harding Ct., Nashville

TEXAS
Beck, Donald L., 4507 Duval St., Austin
Reed, Janie L., 3711 Tuam No. 1, Houston (A)
Treadwell, James H. Jr., 2001 Live Oak, Waco
Wheeler, John E. Jr., 2103 St. Francis, Dallas (A)

UTAH
Anderson, Charles H., 620 N. 3, E., Logan

VIRGINIA
Krezanoski, Joseph Z., 7606 Hillside Ave., Richmond (A)
Worley, Douglas J., 8403 Yolanda Rd., Richmond (A)

WASHINGTON
Barr, Gracie A., 1000 8th Ave., Apt. A-503, Seattle
Ernst, Rudolph Jr., 9052 E. Shorewood Dr., Apt. 251, Mercer Is. (A)
Marshall, Richard L., 2501 E. 115th, Apt. A, Seattle

WISCONSIN
Comstock, Royal R., 4125 N. 24th Pl., Milwaukee (A)
Sister M. Damian Braun, 2300 Western Ave., Manitowoc

CUBA
Sanchez, Margarita T., 10 No. 456, Vedado, Habana

on duty in the emergency room

Albumin/CUTTER
for rapid shock therapy

Albumin should be available for emergency treatment following trauma, hemorrhage or burns because it immediately restores and maintains an effective blood volume. An intravenous infusion of 50 cc. of 25% albumin may be expected to pull 175 cc. of fluid into the circulatory system *within 15 minutes.* It would require 250 cc. of plasma or 500 cc. of whole blood to duplicate this therapeutic effect. In addition, Albumin/Cutter is salt-poor, heat-treated against the hepatitus virus, and ready for immediate use. Also indicated in: acute barbiturate poisoning, cirrhosis, cerebral edema, nephrotic syndrome, hypoproteinemia.
Available in: 50 cc. emergency kits, complete with administration equipment; 20 cc. vials.

Make sure your supply of Albumin/Cutter is ample for emergencies as well as for routine hospital administraton.

CUTTER *Laboratories*
BERKELEY, CALIFORNIA

POSITIONS

in hospital pharmacy

POSITIONS WANTED

ASSISTANT CHIEF PHARMACIST IN LARGE HOSPITAL—M.S. Degree, University of Maryland; internship, Johns Hopkins Hospital. Staff Pharmacist experience prior to internship; member professional organizations. Interested in career in hospital pharmacy; available after July 1st. Write Margaret F. Sherwood, Pharmacy Department, Johns Hopkins Hospital, Baltimore 5. Md.

STAFF PHARMACIST—Washington, DC or western states. Nine months hospital experience; registered in Arkansas. Write Mae Hong, 1011 Childress Street, St. Louis, Missouri.

STAFF PHARMACIST—Graduate from University of Connecticut in June. Write Regina Seliga, Unit 6, Section B, University of Connecticut, Storrs, Connecticut.

POSITIONS OPEN

STAFF PHARMACIST—Teaching hospital connected with University of Vermont College of Medicine; broad experience available; 40 hour week; 2 weeks vacation; salary based on experience and education. Hospital located on Lake Champlain, 80 miles from Montreal; excellent recreation area. Write Mr. Edward F. Croumey, Chief Pharmacist, The Mary Fletcher Hospital, Burlington, Vermont.

ASSISTANT TO CHIEF PHARMACIST—M.S. Degree or certificate of internship required. General hospital, 600 beds; department has staff of six pharmacists; 44 hour week; 2 weeks vacation; sick leave and paid holidays. Salary dependent upon qualifications and experience. Write Sister Rose of Providence, Chief Pharmacist, Sacred Heart Hospital, 101 W. Eighth Street, Spokane 4, Washington.

STAFF PHARMACIST—214 bed hospital; 40 hour week. Starting salary $3900. Write Sister M. Theophane, Administrator, St. Joseph's Hospital, Broadway and 12th Sts., Lorain, Ohio.

PHARMACIST—335 bed county hospital; large out-patient department; parenteral solution room operated by pharmacy. Starting salary $375, increase after six months. Write Joel J. White, M.D., Medical Director-Administrator, Duval Medical Center, 2000 Jefferson Street, Jacksonville 8, Florida.

STAFF PHARMACIST—Unusual opportunity; new hospital 235 beds expanding to 450; each staff member appointed as instructor in School of Pharmacy so must have interest in teaching; must be member of A.S.H.P. Write Dr. William Heller, Chief Pharmacist, University of Arkansas Medical Center, Little Rock, Arkansas.

REGISTERED PHARMACIST—Female, 500 bed general hospital, 40 hour week, dormitory facilities if desired. Starting Salary $3900. Write Personnel Director, Southern Baptist Hospital, New Orleans, Louisiana.

REGISTERED PHARMACIST—Opening in hospital on South Florida coast. Write Sister Josephine Marie, Administrator, St. Mary's Hospital, West Palm Beach, Florida.

STAFF PHARMACIST—Registered; for manufacturing or dispensing in large teaching hospital; excellent equipment; good hours; 2 weeks vacation; sick leave. Minimum starting salary $425 per month; higher salary for those experienced in manufacturing. Write Peter Solyom, Chief Pharmacist, University of Chicago Clinics, 950 E. 59th Street, Chicago, Illinois.

Advertisers

MAY-JUNE 1957

American Sterilizer
I.V. Solutions, 241

Ames Company, Inc.
Clinitest, 259

Barnstead Still and Sterilizer Company
Water Stills, 354-355

Baxter-Travenol Laboratories, Inc.
I.V. Bottles, 266

Bristol Laboratories
Bufferin, 245

Ciba Pharmaceutical Products, Inc.
Doriden, Outside back cover

Cutter Laboratories
Albumin, 351, 359

Eaton Laboratories
Furadantin, 267
Furacin, 357

Hoffmann-La Roche
Synkayvite, 243
Gantrisin, 272

Hynson, Westcott and Dunning
Trexinest, 353

Lakeside Laboratories
Mercuhydrin, 249

Lederle Laboratories
Folbesyn, 352
Kynex, 271

Lehn & Fink Products Corporation
O-Syl, 356

Eli Lilly and Company
Tes-Tape, inside front cover

Macbick Company
Equipment, 235

McKesson and Robbins, Inc.
Hospital Reference, 239

Mead Johnson
High Calorie Solution, 270

Merck Sharp & Dohme
Meprolone, 247, 255

Organon, Inc.
Liquaemin Sodium, 261

Panray
Reserpine and Rauwolfia Serpentina, 232

Parke, Davis and Company
Chloromycetin, 274

Pfizer Laboratories
Sigmamycin, 251

Rystan Company
Panafil, 265

Schering Corporation
Neraval, 257
Trilafon, 237

E. R. Squibb and Sons, Div. of Mathieson Chem. Corp.
Mysteclin, inside back cover

West Disinfecting Company
Wescodyne, 253

Winthrop Laboratories
Zephiran, 264

Wyeth Laboratories
Tubex, 268-269